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QUASI-PUBLIC
CORPORATION ACCOUNTING
AND MANAGEMENT
MULHALL

University of
California



Lux ex Tenebris.



Claus Spreckels Fund.



010283

QUASI-PUBLIC CORPORATION

ACCOUNTING

AND

MANAGEMENT.

BY

JOHN F. J. MULHALL, P.A.

FIRST EDITION.

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CALIFORNIA

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PREFACE.

THE evolution of business into corporate form necessitated a corresponding change in the methods of accounting and management, especially so for the quasi-public corporation, whose principal and auxiliary books are radically different from those of the ordinary business corporation.

The scarcity of material data bearing upon Quasi-Public Corporation Accounting and Management suggested to the writer that a book of this character would be of interest not alone to those engaged either in an administrative or executive capacity in the respective corporations referred to herein, but especially so to the accountant whose duty it is to arrange special forms and books of account for his particular line of business.

It is the intention of the writer to state briefly the books, forms, and methods necessary for the proper organization and management of the business and the recording of all the essential details of Revenue, Operation, Maintenance, and Construction, with the least possible expenditure of time and labor consistent with good management and explicit statements as to Profit and Loss and Assets and Liabilities.

The author desires to express thanks to Mr. William Wheeler, for his review of the part on Water Works and for the use of some of his forms; to Mr. Albert F. Davol, for his review of the part on Telephone Companies; to Mr. William F. Goepper, for his review of the part on Electric Light Works; and to Mr. James H. Neal, for his valuable suggestions on Electric Railway accounting and his general review of the entire work.

TO THE
LIBRARY

CONTENTS.

PART I. ORGANIZATION.	PAGE
General Prerequisites.....	7
Record Books.....	8
 PART II. SECURITIES.	
Capital Stock.....	9
Bonds.....	12
 PART III. WATER WORKS.	
Application Book.....	28
Service Card.....	28
Plumber's Card.....	29
Water, Tap, and Service Pipe Bills.....	30
Collector's Report.....	33
Treasurer's Statement.....	34
Controlling Method.....	35
House-to-House Inspection and Meter Books.....	35
On and Off Book.....	39
Customer's Registers.....	163
Cash Book, Journal, and Ledger.....	41
Accounts Payable, Vouchers Payable, or Distribution Book.....	49
Voucher, Check, and Distribution.....	51
Classification of Revenue, Operation and Maintenance, Fixed Charges and Construction.....	53
Cash Book (Controlling Method).....	57
Auxiliary Books.....	58
(A) Construction Record Book.....	58
(B) Gate Book.....	61
(C) Pumping Station Record Book.....	62
(D) Filter Record Book.....	62
(E) Meter Test and Meter Repair Books.....	62
(F) Details of Headings.....	63
(A-1) Construction Record Book.....	63
(B-1) Equipment Book, Pumping Station.....	63
(C-1) Real Estate Book.....	64
(D-1) Miscellaneous Construction Book.....	64
 PART IV. GAS WORKS.	
Application Book, Service Card, Collector's Report, Treasurer's State- ment, Meter Book, On and Off Book, Gasfitter's Cards, Bills,	66
Customer's Registers.....	163
Cash Book, Journal, and Ledger.....	66

	PAGE
Classification of Revenue, Operation and Maintenance, Manufacturing, Fixed Charges, and Construction.....	69
Auxiliary Books.....	73
(A) Construction Record Book.....	73
(B) Equipment Book, Manufacturing Plant.....	73
(C) Real Estate Book.....	74
(D) Valve or Gate Book.....	74
(E) Meter Test and Meter Repair Books.....	74
(F) Manufacturing Book.....	75
Form of Report Required by Gas and Electric Light Commissioners of Massachusetts.....	76
Extracts from Massachusetts Law, Pertaining to Gas and Electric Light Plants.....	115
 PART V. ELECTRIC LIGHT WORKS.	
Application Book, Electrician's Card, Collector's Report, Treasurer's Statement, Bills, Meter Book, and On and Off Book.....	116
Customer's Registers.....	163
Cash Book, Journal, and Ledger.....	117
Classification of Revenue, Operation and Maintenance, Fixed Charges and Construction.....	119
Auxiliary Books.....	122
(A) Construction Record Book.....	122
(B) Equipment Book, Power Station.....	123
(C) Station Record.....	124
(D) Real Estate Book.....	124
Form of Report Required by Gas and Electric Light Commissioners of Massachusetts.....	76
Extracts from Massachusetts Law Pertaining to Gas and Electric Light Plants.....	115
 PART VI. STEAM HEATING WORKS.	
Application Book, Service Card, Collector's Report, Treasurer's State- ment, On and Off Book, Steamfitter's Card, Bills.....	125
Customer's Registers.....	163
Cash Book, Journal, and Ledger.....	125
Classification of Revenue, Operation and Maintenance, Fixed Charges and Construction.....	127
Auxiliary Books.....	129
(A) Construction Record Book.....	129
(B) Gate Book.....	129
(C) Station Equipment Book.....	129
(D) Real Estate Book.....	129
 PART VII. TELEPHONE COMPANIES.	
Limited and Unlimited Service.....	130
Electrician's Card.....	130
Operator's Sheets.....	130

	PAGE
Billing and Collections.....	131
In and Out Book.....	133
Customer's Registers.....	163
Cash Book, Journal, and Ledger.....	134
Classification of Revenue, Operation and Maintenance, Fixed Charges and Construction.....	135
Auxiliary Books.....	138
(A) Construction Record Book.....	138
(B) Equipment Book, Power Station.....	140
(C) Real Estate Book.....	141

PART VIII. ELECTRIC RAILWAYS.

General.....	142
Conductor's Reports.....	142
Inter-urban Street Railways.....	142
Freight and Express.....	143
Payrolls.....	144
Paymaster.....	144
Supplies.....	144
Cash Book, Journal, and Ledger.....	144
Classification of Revenue, Operation and Maintenance, Fixed Charges and Construction.....	148
Auxiliary Books.....	158
(A) Construction Record Book.....	158
(B) Equipment Book, Rolling Stock.....	159
(C) Equipment Book, Power Station.....	160
(D) Water-Power Plant, Construction Book.....	161
(E) Real Estate Book.....	161
(F) Operation Book, Power Station.....	162

PART IX. COMBINED INSPECTION AND CUSTOMER'S REGISTERS.

Customer's Registers, running five years or more, for Water, Gas, Electric Light, Steam Heat and Telephone Companies.....	163
Loose-Leaf Registers.....	168
Card Registers.....	170

PART X. PURCHASING DEPARTMENT.

Purchasing Agent.....	171
Invoices.....	173
Department Orders.....	174

PART XI. SALES DEPARTMENT.

Solicitors.....	175
Credits, Collections, and Claims.....	175
Complaints.....	176
Fixtures.....	176

	PAGE
PART XII. ENGINEERING DEPARTMENT.	
Plans.....	177
Metal Plan Case.....	177
Extensions and Additions of the System.....	177
PART XIII. CHEMICAL AND TESTING DEPARTMENT.....	178
PART XIV. AUDITS AND EXAMINATIONS.....	179
PART XV. DEPRECIATION.	
Maximum Life.....	181
Mean Life.....	182
Minimum Life.....	182
PART XVI. FUNDS AND DIVIDENDS.....	184
PART XVII. ANNUITY, COMPOUND INTEREST, AND SINKING FUND TABLES,	185-189
PART XVIII. MISCELLANEOUS ACCOUNT FORMS.....	190
PART XIX. MISCELLANEOUS INSTRUMENT FORMS.....	195
PART XX. OFFICE DEVICES.....	199

PART I.

ORGANIZATION.

QUASI-PUBLIC corporations may now be formed under the general laws of each state, but in the past, as a rule, they were organized under special charters.

GENERAL PREREQUISITES.

Generally three, but sometimes five or more persons may associate themselves together by written Articles of Agreement for the purpose of forming a corporation, the number of persons necessary depending on the laws of the state under which they intend to incorporate.

Their first meeting shall be called by one or more of the signers of said articles, by giving notice thereof, stating the place, time, and object of the meeting to each signer, in writing or by publication in some newspaper in the county fourteen days prior to the day of the meeting. If they all sign waiver of notice of such meeting, no notice or publication is necessary therefor.

At said meeting they may organize into a corporation, adopt a corporate name, define the purposes of the corporation, fix the amount of the capital stock, divide it into shares, and elect a president, board of directors, secretary, and any other necessary officers, and may adopt a code of By-Laws.

Before commencing actual business, the president, treasurer, and a majority of the board of directors prepare a certificate on a form generally prescribed by the state under which they incorporate, setting forth the purposes of the corporation, the amount of the capital stock, the amount already paid in, the kind and par value of the shares; the names and residences of the owners, etc., sign, and make oath thereto, and file same with fee therefor with the proper state official, who later furnishes them with a certificate of their incorporation.

The above conditions, or others of a similar character, are the methods prescribed by the different states for incorporations.

It is always advisable, however, in matters of incorporation to secure the best legal advice.

RECORD BOOKS.

All corporations of whatever character are required by law to keep what are termed minute or record books, wherein are recorded the Act of Incorporation, By-Laws, etc., and minutes of the meetings of the stockholders' and directors' meetings.

For a small company one book will be sufficient, allotting the first half to the records of the stockholders' meetings and the last half to those of the directors' meetings. For a large company it would be advisable to have separate books for stockholders' and directors' meetings.

They are also required to have a stock certificate book, stock ledger, and seal.

PART II.

SECURITIES.

CAPITAL STOCK.

Certificates of Stock in a corporation represent to the party in whose name it is issued part ownership in the corporation issuing same. The amount of issue, kind and par value of same, whether it be \$25, \$50, or \$100, or any other figure, is fixed at the time of its issue by the vote of the corporation; and at times by the general laws of the state.

When there is only one class of stock, it is considered as Common Stock; if more than one class, it is divided into Common and Preferred Stocks. There may be still further divisions of the Preferred Stock into First Preferred, Second Preferred, etc.

(Stub)	(Form 100)
	(Form of Common Stock Certificate.)
	AUTHORIZED CAPITAL STOCK, \$2,250,000.
No. 688.	10,000 shares Preferred. 12,500 shares Common.
..... shares	No. Shares.
	688.
Issued to	CONSUMERS' WATER COMPANY
.....	of Boston, Mass.
.....	This is to certify that
.....190	is entitled to shares, of one hundred
Received the above	dollars each, of the Consumers' Water Company
described certificate.	Common Stock, transferable only on the books of
No.	said company, in person or by attorney, on the
.....	surrender of this certificate.
	IN WITNESS WHEREOF, said company has caused
Old Certificate	this certificate to be signed and sealed by its Presi-
No.	dent and Treasurer, this day of
	....., A.D. 190 .

	Treasurer.
	President.

(Stub)	(Form 101)
	(Form of Preferred Stock.)
	AUTHORIZED CAPITAL STOCK, \$2,250,000.
No. 58.	10,000 shares Preferred. 12,500 shares Common.
..... shares.	No. _____
	58. _____ Shares.
Issued to	CONSUMERS' WATER COMPANY
.....	of Boston, Mass.
.....	
.....190	This is to certify that is entitled to .....shares, of one hundred dollars each, of the Preferred Capital Stock of the Consumers' Water Company, transferable only on the books of said company in person or by attorney on the surrender of this certificate.
Received the above mentioned certificate No.	The holder of this Preferred Stock shall, from and after November 1, 1905, be entitled to receive from the net earnings of the company, cumulative divi- dends of six (6) per centum per annum, and to have such dividends with all arrearages, if any, paid in full before any dividends shall be paid upon the Common Stock; and whenever the net earnings of the corporation shall exceed the sum required to pay a dividend of six per centum per annum on both the Preferred and Common Stock outstanding, the surplus shall be payable in dividends <i>pro rata</i> to the holders of the Preferred and Common Stocks.
Old Certificate No.	IN WITNESS WHEREOF, said company has caused this certificate to be signed and sealed by its Presi- dent and Treasurer, this .....day of, A. D. 190 Treasurer.
	President.

(Form 102)

(Indorsement in blank. Form of Power of Attorney.)

FOR VALUE RECEIVED, I
hereby sell, assign, and transfer to
..... shares of the stock mentioned in this certificate,
and do hereby appoint Attorney,
to transfer same on the books of the company, with full power of substitution.
Dated
WITNESS:
Signature).....

The above forms of both Common and Preferred Stocks are specimens of the many numerous forms used, they being made to conform with votes of the stockholders when same are issued.

All classes of stock have some form of power of attorney printed on the back, so as to expedite transactions therein.

The seal of a corporation is usually a die, operated by hand, having printed thereon the name of the corporation and year of its incorporation.

BONDS.

Mortgage bonds are liens on the property of the corporation, being promises to pay certain specified amounts at the end of fixed periods, with interest thereon at stated intervals at a specified rate, and are secured by a mortgage deed of trust on a part or the whole of a corporation's property, the terms of the mortgage being set forth in detail in the deed of trust.

A corporation may issue mortgage bonds, such as firsts, seconds,—sometimes called first mortgage consolidated bonds,—thirds, etc., but seldom issues over three mortgages on account of the enormous discount at which they would have to be sold.

Serial bonds differ from other mortgage bonds in the date of maturity, certain portions of the issue maturing at fixed intervals.

Registered bonds are entered on the books of a company to the credit of the owner and are transferable only on proper indorsement by him.

Collateral trust bonds are secured by the deposit of either stocks or bonds, or both, for the benefit of the holders of said collateral bonds.

Debenture bonds are promises to pay, without security, and are in effect notes of the corporation, their value depending on the ability of the corporation to pay, or the credit of the corporation issuing them.

Income bonds are promises to pay certain specified amounts at the end of fixed periods, with interest thereon at stated intervals out of the income of the corporation. The interest payments are not obligatory on the corporation unless the actual earnings of the corporation equal or exceed the amount necessary to meet

the interest on said issue after payment of all operating expenses and fixed charges.

Quasi-public corporations, such as water works, gas works, electric light works, steam heating works, telephone companies, and electric railways, generally issue only what are termed mortgage bonds, which are usually in the denomination of either \$500 or \$1,000, or both; while steam railways, owing to their extensive properties, and constant additions and consolidations through purchase and by lease, not only issue all kinds of mortgage bonds, but other classes of securities. Occasionally, some of the other corporations do likewise.

(Form 103)

(Form First Mortgage \$1,000 Bond.)

STATE OF MASSACHUSETTS.

\$1,000.

No.....

CONSUMERS' WATER COMPANY.

FIVE PER CENT

FIRST MORTGAGE SINKING FUND BOND, ONE THOUSAND DOLLARS.

(\$1,000.)

THE CONSUMERS' WATER COMPANY, a corporation duly created and organized under the laws of the state of Massachusetts, is indebted to the American Trust Company, of Boston, in the Commonwealth of Massachusetts, or bearer, in the sum of ONE THOUSAND DOLLARS, which sum it promises to pay to the bearer hereof, on the first day of October, 1925, with interest from the first day of October, 1905, at the rate of five per cent per annum, payable semi-annually on the first day of April and October in each year, on presentation and surrender of the proper interest coupon hereto annexed, at the American Trust Company, in Boston.

This bond is one of a series numbered from one to two hundred, inclusive, the issue of which is limited to two hundred thousand dollars, being all of the denomination of one thousand dollars, all of said bonds being secured by a trust mortgage to the American Trust Company on all the lands, income, revenues, and other property of every kind of the Consumers' Water Company, now owned, or to be hereafter acquired, and subject to the terms and conditions of said trust mortgage.

The said mortgage provides that bonds numbered from one hundred and fifty-one to two hundred, both inclusive, shall be applied solely to the payment for future extensions of the works of the said Consumers' Water Company and shall remain in the custody of the said trustee until said extensions, or part thereof, have been made; and issued then only upon

This bond shall be valid only when authenticated by a certificate indorsed hereon, signed by the American Trust Company, trustee.

..... *Treasurer.*

.....Treasurer.

.....Treasurer.

issue, so that a part or the whole of the issue will be retired at the maturity of the trusteeship.

One of the many forms of mortgage is as follows:

(Form 105)

(Form of Mortgage on Property given by Company to Trust Company to secure issue of Bonds, including therein Form of Bond.)

THIS INDENTURE, made and entered into the first day of September in the year one thousand eight hundred and eighty-five, by and between THE..... WATER COMPANY, of, a corporation duly organized and existing under the laws of the state of, of the first part, and The..... Trust Company, trustee, a corporation duly organized under the laws of the state of, of the second part.

WITNESSETH, That whereas the party of the first part is authorized and empowered under the laws of the state of to supply with water for public and private purposes the city of in the county of and state of, and the inhabitants thereof, by water works, under a grant to it by the provisions of an ordinance of the mayor and common council of the city of, duly adopted and approved on the twenty-ninth day of May, 1885, and duly published on the first day of June, 1885, entitled: "An ordinance providing for supplying the city of and its inhabitants with water for public and private purposes; granting to The Water Company, of the franchise and license of constructing and operating water works in the city of; contracting with the said company for the rent of fire hydrants for supplying the city of with water, and giving the city of an option to purchase the said works," and the party of the first part has entered upon the construction of the said water works, and the stockholders of the party of the first part, at a meeting duly called and held at aforesaid, on the seventh day of August, 1885, unanimously adopted the following resolutions:

"Resolved, by The Water Company, of, in stockholders' meeting duly assembled:

"1. That The Water Company, of, for the purpose of paying for its water works and bettering and extending the same, make and issue its first mortgage coupon bonds, to the amount of two hundred thousand dollars, to wit: Two hundred bonds of the denomination of five hundred dollars each, and one hundred bonds of the denomination of one thousand dollars each, the said bonds to be dated the first

day of September, 1885, and to mature thirty years thereafter, bearing interest from their date at the rate of six per centum per annum, payable semi-annually on the first days of March and September in each year at The Trust Company, in the city of, in the lawful money of the United States, on the presentation and surrender of corresponding interest coupons attached to the said bonds; any or all of the said bonds being redeemable in advance of their maturity on and after the first day of September, 1895, in such installments and at such times as this company at its option may from time to time elect; and further,

" 2. *Resolved*, That, to secure the payment of the principal and interest of the said bonds, a first mortgage is hereby directed to be made and executed to The Trust Company, of, in the city, county, and state of, as trustee, upon the said water works of the said Water Company, of, in and near the city of, together with all its lands, machinery, pipes, outfit, rights, liberties, privileges, and franchises, now held and hereafter to be acquired by it, with all its income and profits; and further,

" 3. *Resolved*, That, in addition to the payment of the interest, a sinking fund, to be in charge of the said trustee, shall be created and established to provide for the redemption and retirement of the principal of the said bonds, and that, beginning with the receipts of the second day of September, in the year one thousand eight hundred and ninety, and continuing during the existence of any part of the said mortgage debt, ten per centum of the gross water rates, except the revenue from public fire hydrants, received by Water Company, of, shall be paid over to the said trustee on the first days of March and September in each and every year, to be applied to the redemption and retirement of the principal of the said bonds, but in no case at a rate exceeding ten per centum premium and accrued interest, and such of the said money as the said trustee shall not be able to use in purchasing bonds at or below ten per centum premium and accrued interest to be invested by it for the purpose of earning interest for the benefit of the said sinking fund; and further,

" 4. *Resolved*, That, as further security for the payment of the said interest coupons, an assignment and transfer are hereby directed to be made and executed to the said trustee, of all claims and demands against the city of during the existence of any part of this mortgage debt for the rent of fire hydrants under an ordinance of the mayor and common council of the city of, adopted and approved May 29, 1885, entitled: 'An ordinance providing for supplying the city of and its inhabitants with water for public and private purposes; granting to Water Company, of, the franchise and license of constructing and operating water works in the city of; contracting with the said company for the rent of fire hydrants

for supplying the city of with water, and giving the city of an option to purchase the said works, and under any additional water works ordinances of the said city of, irrevocably constituting the said trustee and its successors the agent of Water Company, of, to receive and receipt for all sums of money so accruing from the said city of for the rent of fire hydrants during the existence of any part of this mortgage debt; the said trustee to apply such sums to the payment of the said interest coupons as they mature, returning to the said company any surplus on hand after paying or providing for all matured interest coupons on outstanding bonds; and further,

" 5. *Resolved*, That the president and secretary are authorized and instructed to sign, seal, deliver, and acknowledge for record, in due form of law, the said mortgage, and to sign and seal the said bonds, and the treasurer to sign by the engraved facsimile of his signature the coupons thereof, and the president to deliver the said coupon bonds so perfected to the said trustee; and further,

" 6. *Resolved*, That one hundred and fifty thousand dollars in amount of the said bonds shall at once be issued by the said trustee upon the order of the Board of Directors of this company, the said amount being needed to pay for the cost of the said water works; but no part of the remaining fifty thousand dollars of the said bonds shall be issued except for the purpose of paying for extensions or betterments hereafter to be made by the said company, and to the amount necessary for such object, and then only upon an order on the said trustee by the Board of Directors, giving the price of such extension or betterment, and accompanied by their certificate to the effect that such extension or betterment has been made, and that the revenue to the said Water Company from the said extension or betterment amounts to at least eight per centum per annum upon the amount of bonds so to be issued."

AND IN PURSUANCE of the said resolutions there have been prepared and made ready for issue two hundred bonds, numbered consecutively from one to two hundred, both numbers inclusive, all being equal and alike, save as to numbers, and of the denomination of five hundred dollars each, dated September 1, 1885, and maturing September 1, 1915, with sixty coupons attached to each; and the said coupons consecutively and correspondingly numbered and matured, the first maturing March 1, 1886, the sixtieth September 1, 1915, and the intermediate coupons following the first in regular intervals of six months; coupons and principal being made payable at Trust Company, in the city of, which bonds and coupons are in form as follows:

\$500.00.

UNITED STATES OF AMERICA.

No.

STATE OF

THE WATER COMPANY, OF
 FIRST MORTGAGE BOND.

THE WATER COMPANY, OF, a corporation duly organized and existing under the laws of the state of, for value received hereby promises to pay to Trust Company, or bearer, the sum of five hundred dollars, lawful money of the United States of America, on the first day of September in the year one thousand nine hundred and fifteen, together with interest on said sum, from the date hereof, at the rate of six per centum per annum, lawful money of the United States of America, payable semi-annually on the first days of March and September in each year, at Trust Company, in the city of, on presentation and surrender of the coupons hereto attached, as they severally become due. This bond is one of a series of two hundred, of five hundred dollars each, numbered consecutively from one to two hundred, both numbers inclusive, and of a series of one hundred, of one thousand dollars each, numbered consecutively from two hundred and one to three hundred, both numbers inclusive, and amounting in the aggregate to two hundred thousand dollars, all being of like date and tenor, except as to amount, and all equally secured, to be paid by first mortgage upon the water works of the said Water Company, of, in and near the city of, in the state of, together with all its lands, machinery, pipes, outfit, rights, liberties, privileges, and franchises, now held or hereafter to be acquired by it, with all its income and profits; executed by it to Trust Company, trustee, bearing even date herewith, and duly acknowledged and recorded according to law, in the office of the Register of Deeds of the County of, in the state of This bond shall not become obligatory until authenticated by the signature of said trustee to the certificate hereto appended; and it is redeemable in advance of its maturity, on and after the first day of September, 1895, at such a time as the said Water Company, of, at its option may elect.

IN WITNESS WHEREOF, the said Water Company, of, has caused this instrument to be sealed with its corporate seal, and to be signed by its president and secretary, and the coupons hereto attached to be signed by the engraved facsimile of the signature of its treasurer, at aforesaid, this first day of September, 1885.

THE WATER COMPANY, OF,

by its President,

and by its Secretary.

This certifies that this bond is one of the bonds mentioned in the mortgage within referred to.

THE TRUST COMPANY,
by its President.

[\$15.] —, —, The Water Company, of
....., will pay to bearer fifteen dollars on surrender of this coupon at
..... Trust Company in the city of, for semi-
annual interest on first mortgage bond No.
..... Treasurer.

AND IN FURTHER PURSUANCE of the said resolutions there have been also prepared and made ready for issue one hundred bonds, numbered consecutively from two hundred and one to three hundred, both numbers inclusive, all being equal and alike save as to numbers, and of the denomination of one thousand dollars each, dated September 1, 1885, and maturing September 1, 1915, with sixty coupons attached to each, and the said coupons consecutively and correspondingly numbered and matured, the first maturing March 1, 1886, the sixtieth September 1, 1915, and the intermediate coupons following the first in regular intervals of six months, coupons and principal being made payable at Trust Company in the city of, which bonds and coupons are in form as follows:

\$1,000.00 UNITED STATES OF AMERICA. No.....

STATE OF

THE WATER COMPANY, OF

FIRST MORTGAGE BOND.

THE WATER COMPANY, OF, a corporation duly organized and existing under the laws of the state of
....., for value received, hereby promises to pay to
Trust Company, or bearer, the sum of one thousand dollars, lawful money of the United States of America, on the first day of September, in the year one thousand nine hundred and fifteen, together with interest on said sum, from the date hereof, at the rate of six per centum per annum, lawful money of the United States of America, payable semi-annually on the first days of March and September in each year, at Trust Company in the city of, on presentation and surrender of the coupons hereto attached, as they severally become due. This bond is one of a series of two hundred, of five hundred dollars each, numbered consecutively from one to two hundred, both numbers inclusive, and of a series of one hundred, of one thousand dollars each, numbered consecutively from two

hundred and one to three hundred, both numbers inclusive, and amounting in the aggregate to two hundred thousand dollars; all being of like date and tenor, except as to amount, and all equally secured to be paid by first mortgage upon the water works of the said Water Company, of, in and near the city of, in the state of, together with all its lands, machinery, pipes, outfit, rights, liberties, privileges and franchises, now held or hereafter to be acquired by it, with all its income and profits; executed by it to Trust Company, trustee, bearing even date herewith, and duly acknowledged and recorded according to law, in the office of the register of deeds of the county of in the state of This bond shall not become obligatory until authenticated by the signature of said trustee to the certificate hereto appended; and it is redeemable in advance of its maturity, on and after the first day of September, 1895, at such a time as the said Water Company, of , at its option may elect.

IN WITNESS WHEREOF, the said Water Company, of , has caused this instrument to be sealed with its corporate seal, and to be signed by its president and secretary, and the coupons hereto attached to be signed by the engraved facsimile of the signature of its treasurer at aforesaid, this first day of September, 1885.

THE WATER COMPANY, OF ,
by
....., *its President*,
and by
....., *its Secretary*.

This certifies that this bond is one of the bonds mentioned in the mortgage within referred to.

THE TRUST COMPANY,
by
....., *its President*.

[\$30.] —, —, The Water Company, of ,
....., will pay to bearer thirty dollars on surrender of this coupon at Trust Company in the city of , for semi-annual interest on first mortgage bond No.
....., *Treasurer*.

NOW, THEREFORE, for and in consideration of the premises, and of the sum of one dollar, cash in hand, paid to the party of the first part by the party of the second part, before the sealing and delivery hereof, the receipt

whereof is hereby acknowledged, and in order to secure the payment of said bonds and coupons according to their tenor, the party of the first part has granted, bargained and sold, and does by these presents mortgage and warrant to the party of the second part, as trustee, and its successors and assigns, all rights, powers, privileges, and franchises granted to or conferred upon the party of the first part, by the state of and the city of, or which may hereafter be so granted and conferred; together with the water works of the party of the first part, in and near the city of, in county, in the state of, together with all its lands, machinery, pipes, outfit, rights, liberties, privileges, and franchises, now held or hereafter to be acquired by it, with all its income and profits, including any revenues derived by the party of the first part from whatsoever source; and all its contracts, and all its muniments of title to real and personal estate.

TO HAVE AND TO HOLD the same to the party of the second part, its successors and assigns forever; in trust, nevertheless, upon the following conditions, and for the following uses and purposes, to wit:

First. So long as no default shall be made in the payment of the principal or the interest of the said bonds according to their tenor and effect, and so long as the conditions of this deed shall be performed, the party of the first part, its successors or assigns, shall be permitted to retain the possession and control of the said mortgaged property, and of its income and profits, except as hereinafter provided. But the party of the first part agrees to pay all taxes, assessments and levies which shall from time to time be legally imposed, assessed, or levied upon the property and franchises hereby conveyed and attempted to be conveyed, the lien whereof might be held superior to the lien of these presents, so that the priority of these presents shall at all times be duly maintained and preserved; and to take care of and preserve the said property, and to do on demand of the party of the second part, its successors and assigns, all acts necessary or proper to keep valid the lien hereby created and intended to be created; and at any future time, and as often as it may be necessary, to execute on demand of the party of the second part, its successors or assigns, all such other assurances, deeds, mortgages, and other instruments of writing in due form and effect, as may be proper to the better carrying out of the true intent and meaning of these presents; and especially, and at its own cost, to do all things that may reasonably be required by the party of the second part, its successors and assigns, to keep valid the lien hereby intended to be created upon after acquired property.

Secondly. The party of the first part further covenants for itself, its successors and assigns, to and with the party of the second part, its successors and assigns, that, in addition to the payment of the interest, and in order to provide a sinking fund for the payment and retirement of the

principal of the said bonds, beginning with the receipts of the party of the first part, of the second day of September, in the year one thousand eight hundred and ninety, and continuing during the existence of any of the said mortgage debt, ten per centum of the gross water rates, except the revenue from public fire hydrants, received by Water Company, of, shall be paid over to the said trustee on the first days of March and September in each and every year, to be applied to the redemption and retirement of the principal of the said bonds. The said trustee shall use the said fund in redeeming bonds which the said Water Company, of, may call for redemption in advance of their maturity, and if any surplus of sinking fund money shall remain after exhausting such calls, the said trustee shall apply such surplus to the redemption and retirement of the principal of any other of the said first mortgage bonds of the party of the first part, by purchase of such bonds in the open market, provided that such purchases be made at a rate not exceeding ten per centum premium and accrued interest. And such of the said money as the said trustee shall not be able to use in the manner aforesaid shall be invested by it for the purpose of earning interest for the benefit of the said sinking fund.

Thirdly. In the event that the party of the first part shall fail for the space of ninety days to pay the semi-annual interest as and when the same may become due, on the said bonds, or any of them, after presentation and demand of the payment of such coupons, or shall fail for ninety days to pay the said installments of sinking fund, as and when the same may become due, or any of them, after demand of them, or any of them, then and in that event the whole of the principal of all the outstanding bonds hereby secured shall, at the option of the holders of such bonds, respectively, become due and be payable, and the lien hereby created may be enforced for the whole debt; and the party of the second part and its successors shall on the written request of the holders of a majority of said bonds then outstanding take possession of the property and franchises herein mortgaged or covenanted so to be; and by itself and agents or by a receiver of a court appointed in a suit for the enforcement of this lien, or a suit for such possession, hold, use, and operate the same for the equal benefit of the holders of all of the said bonds, and receive the income and profits therefrom; or such trustee may in such case, by the judgment of a court having jurisdiction, have all the mortgaged property and franchises sold and conveyed. And at any sale of any of the said mortgaged property and franchises, made under or by virtue of these presents, the said trustee may, at the request of a majority in interest of the outstanding bonds, bid and purchase, in person or by attorney, in behalf of the holders of the outstanding bonds herein and hereby secured. What may be received by the trustee or receiver from income and profits and the proceeds of sale shall be applied as follows:

1. To the expenses incurred in and about the proceedings, the execution of this trust, the preservation and operation of said property, the reasonable

compensation to the said trustee, or its successors, and the agent and attorney of said trustee, or its successors, all taxes, assessments, and levies on said property, all damages to which the party of the second part, or its successors, may become liable by reason of the management of said property, and any other proper charge or expense, not caused by the gross negligence or willful misconduct of the party of the second part or its successors.

2. To the payment of the outstanding bonds and the interest thereon, herein and hereby secured, ratably and without discrimination or preference.

3. Any surplus shall be returned to the party of the first part.

Fourthly. If the party of the first part shall at any time before a sale of the mortgaged property and before the first day of September, in the year 1915, pay all the interest then due on said bonds, and all installments then due on account of the said sinking fund, and all expenses, compensations, taxes, assessments, levies, and damages, then and in that case the bonds shall not be regarded as due, and there shall be no sale of the said property for past failures.

Fifthly. The party of the second part, as trustee or otherwise, shall be under no obligation to recognize any person or persons, firm or corporation, as holder or holders, owner or owners, of one or more of the bonds secured hereby, or to do or refrain from doing any act pursuant to the request or demand of any person or persons, firm or corporation, professing or claiming to be such holder or owner, until such supposed holder or holders shall produce the said bonds and deposit the same with the trustee, and shall indemnify and save harmless the trustee, to its full satisfaction, from any and all costs and expenses, outlays and counsel fees and other reasonable disbursements for which it may become liable or responsible on proceeding to carry out such request or demand. The right of action under this indenture is vested exclusively in the trustee, and under no circumstances shall any bondholder or any number of bondholders have any right to institute an action or other proceeding on or under this indenture for the purpose of enforcing any remedy herein and hereby provided, except in case of refusal on the part of the trustee to perform any duty imposed on it by this agreement; and all actions and proceedings for the purpose of enforcing the provisions of this indenture shall be instituted and conducted by the trustee, according to its sound discretion; but the trustee shall be under no obligation to institute any such suit or to take any proceedings under this indenture until it shall be indemnified to its satisfaction for all expenses and costs of every kind, and also for all possible claims for damages. Should any suit or other proceeding be brought against the trustee by reason of any matter or thing connected with the trusts hereby created, or by reason of its being such trustee, it shall be under no obligation to enter any appearance by counsel, or in any way to appear in and defend the said suit or other proceeding, until indemnified to its satisfaction for so doing; but it may never-

theless appear and defend the same without indemnity if it shall elect so to do, and in such case it shall be compensated therefor from the trust fund. In case at any time it shall be necessary and proper for the trustee to make any investigation respecting any facts preparatory to taking or not taking any action, or doing or not doing any thing as such trustee, the certificate of the party of the first part, under its corporate seal, attested by the signature of its president and the affidavit of one or more directors, shall be sufficient evidence of such fact to protect the trustee in any action that it may take by reason of the supposed existence of such fact. It shall be no part of the duty of the party of the second part to see to the recording of this indenture as a mortgage or conveyance of real estate, or to the filing thereof as a chattel mortgage, or renewing such mortgage, or to do any other act which may be suitable and proper to be done for the continuing of the lien of this indenture, or for giving notice of the existence of such lien; nor shall it be any part of its duty to effect insurance against fire or other damage on any of the mortgaged property, or to renew any policies of insurance. The trustee shall only be responsible for reasonable diligence in the performance of the trust, and shall not be answerable in any case for the act or default of any agent, attorney or employee selected with reasonable discretion. The trustee shall be entitled to be reimbursed all proper outlays of every sort or nature by it incurred in the discharge of its trust, and to receive a reasonable and proper compensation for any duties that it may at any time perform in the discharge of the same; and all such fees, commissions, compensation, and disbursements shall constitute a lien on the mortgaged property and premises. The recitals herein contained are made on behalf of the party of the first part, and the party of the second part assumes no responsibility as to the correctness of any statement therein contained.

Sixthly. The party of the first part shall indemnify and hold harmless the party of the second part and its successors against any loss or damage which it may incur or to which it may be subjected by reason of accepting or executing this trust, not caused by its gross negligence or willful misconduct.

Seventhly. The dissolution, death, incapacity, insolvency, refusal to act or resignation of any trustee under this mortgage shall produce a vacancy in the trust hereby created, and in the event of such vacancy it shall be lawful for the judge of the Circuit Court of county, in the state of, during term time or in vacation, on the petition of the holders of not less than a majority of the said bonds then outstanding, to appoint from time to time a trustee or trustees to fill the vacancy so produced; and the trustee or trustees so appointed shall be clothed with all the rights, powers, and privileges conferred by this mortgage upon the party of the second part.

Eighthly. And as further security for the payment of the said interest and principal, and of the said sinking fund installments, the party of the first part has assigned, transferred, and set over, and by these presents assigns, transfers, and sets over, to the party of the second part and its successors all its claims and demands during the existence of any part of this mortgage debt, against the said city of for the rent of fire hydrants under the ordinance hereinbefore mentioned, and under any additional water-works ordinances of the mayor and common council of the city of, including the right of the party of the first part to the special fund out of which such demands are payable; and the party of the first part hereby irrevocably constitutes and appoints the said trustee and its successors, its agent to receive and receipt for all sums of money so accruing from the said city of for the rent of fire hydrants during the existence of any part of this mortgage debt; it to apply a sufficiency to the payment of the interest on the outstanding bonds as such interest matures, and to return any surplus on hand after paying or providing for all matured coupons, to the party of the first part on or about the first days of April and October of each and every year.

Ninthly. And if the party of the first part shall well and truly pay or cause to be paid the interest on said bonds, and each of them, as the installments of said interest shall become due, and the said sinking fund installments, as they shall become due, and the principal of said bonds, as it shall become due, and shall comply with all its other obligations, according to the true intent and meaning of these presents, then and in that event the estate, right, title, and interest of the party of the second part and its successors in the trusts hereby created shall cease and determine; otherwise the same shall be and remain in full force and virtue.

Tenthly. And it is expressly understood and agreed that the party of the first part has the right at its option to call and redeem and cause to be redeemed any or all of the said bonds, at par and accrued interest, in advance of maturity, on and after the first day of September, 1895, in such installments and at such times as the party of the first part at its option may from time to time elect.

IN WITNESS WHEREOF, The.....Water Company, of
....., party of the first part, has on this first day of September in the year one thousand eight hundred and eighty-five, sealed this mortgage with its corporate seal, and has caused this mortgage to be signed by its president and secretary for and in behalf of the party of the first part; and The Trust Company, the party of the second part, has sealed the same and caused it to be signed by its president, to attest its acceptance of the trusts conferred upon it by the foregoing mortgage.

THE WATER COMPANY, OF.....,
by....., its *President*,
[SEAL] and by its *Secretary*.

Signed, sealed, and delivered by The Water Company,
of, in the presence of:

.....
.....

THE TRUST COMPANY,

[SEAL] by, its *President*.

Attest:

....., its *Secretary*.

Signed, sealed, and delivered by The Trust Company,
in the presence of:

.....
.....

STATE OF,

County of •

BE IT REMEMBERED, That on this first day of September, in the year of our Lord one thousand eight hundred and eighty-five, in the county and state aforesaid, before me,, a notary public duly commissioned in and for the county and state aforesaid, came , who is personally known to me to be the same person who executed the foregoing instrument as president of Water Company, of, named therein, and he duly acknowledged the execution of the same, and that the said instrument was the act and deed of the said corporation.

And the said, being by me duly sworn, did depose and say: That he resides in the city of, in the county of, in the state of, and is the president of The Water Company, of, the corporation described in and which executed the foregoing instrument; that the seal thereto affixed is the corporate seal of said company, and that it was so affixed by its authority.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal, the said first day of September, 1885.

....., *Notary Public*.

[SEAL]

STATE OF

County of

BE IT REMEMBERED, That on this third day of September, in the year of our Lord one thousand eight hundred and eighty-five, in the county and state aforesaid, before me,, a notary public duly commissioned in and for the county and state aforesaid, came, who is personally known to me to be the same person who executed the foregoing instrument as secretary of The Water Company, of, named therein, and he duly acknowledged the execution of the same, and that the said instrument was the act and deed of the said corporation; and the said, being by me duly sworn, did depose and say: That he resides in the city of, in the county of, in the state of, and is the secretary of The Water Company, of the corporation described in and which executed the foregoing instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal the said third day of September, 1885.

..... Notary Public.

PART III.
WATER WORKS.

On the commencement of business the corporation generally issues a pamphlet or flyer, embodying their rates, rules, and regulations, a copy of which is at the disposal of all, and at the same time opens what is termed an Application Book.

(Form 106)

(Form of Application Book.)

BOSTON, MASS.,190 .

CONSUMER'S WATER COMPANY.

The undersigned hereby makes application to the aforesaid company for a supply of water atpremises, located at and occupied by for purposes only, and agrees to pay for same in accordance with the rates, rules, and regulations of said company, now or hereafter in force; and further agrees that the said company may enter upon the premises or any lands owned by or in which has a right, for laying all pipes that may be necessary for such supply, and that said company may inspect and repair such pipes at any time when occasion requires.

(Signature)

This is the authority or contract under which the water-works superintendent makes the service connection.

SERVICE CARD.

When the service-pipe connection is completed, the superintendent makes out a "service card," showing the service number, date ordered put in, house number, street, name of customer, size of the connection, kind and length of pipe from main to line, line to stop and waste, with shut-offs, etc., thereon; and on the back of the card draws a sketch or diagram of the connection.

If desired, the data showing the connection can be plotted on a set of plans showing the system of works and connections.

If company charges customer for tapping distribution pipe, or for the pipe from same to his property line, bill can be made direct from this card and proper record thereof made in the customer's register hereinafter described, after which the card can be filed.

(Form B)

CONSUMER'S WATER COMPANY.

SERVICE CARD.

No..... BOSTON, MASS.,1905.
 Ordered put in.....
 Name.....
 Location..... House No.....

 Size, Kind of Pipe.....inchpipe
 From Main to Line.....feet
 „ Line „ Curb..... „
 „ Curb „ Stop and Waste..... „
 No. Stop and Wastes.....
 No. Tees..... No. Elbows.....
 No. Crosses..... No. Unions.....
 Other Fittings.....
 Total Length.....Feet
 Remarks :

 Approved by.....1905.
 Inspector.

(See sketch on back showing connection.)

PLUMBER'S CARD.

After the plumber has installed the fixtures, he makes a return thereof on a "plumber's card," showing the date, service number, name of customer, purposes for which supply is to be used, and the number and kind of fixtures connected, either on the inside or outside of the premises, transmitting same to the company whose representative makes an inspection of same, and if found

satisfactory, countersigns the card. The fixtures connected with the service can then be entered in the inspection part of the register and card filed.

(Form C)

CONSUMER'S WATER COMPANY.

PLUMBER'S CARD.

Service

No. BOSTON, MASS., 1905.

I have connected Service No. this day,

House No. Street.

Owned by

Occupied by

For purposes as below.

KIND	NUMBER	Plumber.	Inspected.	By.
Rooms in House			1905.	
Families Supplied				
1st Faucet				
Additional Faucets				
Bath Tubs				
Water Closets				
Urinals				
Laundry Tubs				
Hose				
Fountains				
Horses				

WATER, TAP, AND SERVICE PIPE BILLS.

All bills for water, taps, and service pipes are first entered in the register. In order to avoid confusion and to expedite posting, bills for metered water, unmetered water, or fixture rates, service pipes and taps should be printed on paper of different colors.

Bills are made with stub attachments, the stubs being retained by the collector as his memoranda for moneys received.

(Form D) (Form of Meter Bill.)

CONSUMER'S WATER COMPANY.

Service No. BOSTON, MASS., 1905.

M. DR.
To Water Rent from to 1905.
Present meter reading cu. ft.
Last " " cu. ft.

cu. ft

@ per M, \$

Received Payment,

Collector.

(Bills for metered water are due and payable on the first day of each quarter.)

DO NOT
DETACH STUB.

Service No.

M

Meter Rates

From

To

Amount, \$

Discount, \$

Balance

Due, \$

DO NOT
DETACH STUB.

(Form E) (Form of Fixture Bill.)

(Bring this bill with you and do not detach Stub.)

CONSUMER'S WATER COMPANY.

Service No. BOSTON, MASS., 1905.

M. DR.

To Water Rates for year ending 1905:

. 1st Faucet, \$
. Add'l Faucets,
. Bath Tubs,
. Water Closets,
. Set Basins,
. Set Tubs,
. Hose,
. Sprinklers,
. Fountains,
. Horses,
. Cows,
. Greenhouses,

Total, \$

Received Payment,

Collector.

(Over)

See copy Rates, Rules, and Regulations.

DO NOT
DETACH STUB.

Service No.

M

Water Rates for
Year ending 1905.

Amount, \$

Abatement, \$

Balance

Due, \$

Paid

when,

DO NOT
DETACH STUB.

(Form F)	(Form Service-Pipe Bill.)			
	CONSUMERS' WATER COMPANY.			
Service No.	Boston, Mass.,	1905.	Service No.	DO NOT DETACH STUB.
M.....			M	
To Tapping Main Pipe,			Amount, \$.....	
.....feet of inch	pipe, laid @ cts. per foot,			
.....Stop and Waste Cocks,			Discount, \$.....	
.....cubic yards Rock Excavation, @ \$..... per cubic yard,			Balance	
Extra Pipe,			Due, \$.....	
Extra Fittings,			Paid	
			when,	
	Total,	\$.....		
	Received Payment,			DO NOT DETACH STUB.
			
	Collector.			

COLLECTOR'S REPORT.

The collector makes a report to the treasurer or other officer either daily, weekly, or monthly, as the occasion or custom requires, on a printed form arranged in a columnar manner, showing the number of service, name of customer, amounts received for water (meter and fixture basis separately), taps, service pipes, meter rentals, miscellaneous, and date when paid.

The total of this report should agree with the total of the amounts as indicated on the stubs from which he detached the bills. When transmitting cash or check to the treasurer for the amount thereof, with stubs attached, he receives a voucher signed by the treasurer which is made detachable from the report by a perforated line.

(Form G)

Collector's Report

(Daily)

November 8, 1905

[illegible]

Received from John Jones. Collector \$_____

per his report of _____ with Stube attached

TREASURER

CONTROLLING METHOD.

This method is arranged by the use of a "controlling account":

At the beginning of predetermined periods to debit customer's account in the journal with the total amounts as shown by the respective registers for water, taps, service pipes, etc., and crediting these accounts (water, taps, service pipes, etc.) in said journal, posting same to the ledger accounts, and crediting customer's accounts and debiting cash in the main ledger when payments are made; also to make proper entries or allowances for all abatements, rebates, outstanding accounts, etc., at the end of the fixed periods.

NOTE.—For Customer's Registers see Part IX.

HOUSE-TO-HOUSE INSPECTION AND METER BOOKS.

The house-to-house inspection book is arranged in a columnar manner, with columns for service number, date of inspection, name of customer, street, faucets, additional faucets, bath tubs, additional bath tubs, set tubs, water closets, hoppers, urinals, hose, fountains, horses, head of cattle, horse-power boiler, fans, rooms, valuation, frontage, etc., depending entirely upon the method of rating adopted by the company, with end column for remarks. This book can be made to run for any number of years.

For a large city it would be desirable to have one or more of these books allotted to each section or ward.

In case there is no change in either the fixtures or name of customer, no entry or transcript is required to be made in the inspection part of the register.

In order to facilitate the work of inspection and expedite posting, these books should be arranged by streets or routes. They can be made up in bound book form, or on the loose-leaf system, as seems most desirable.

METER BOOK.

This book is arranged in a columnar manner, with columns for service number, name of customer, street, purposes used, meter number, size and kind, date, reading cubic feet, difference cubic feet, and column for remarks. These books should be arranged by streets or routes and allotted to different sections or wards, as the case demands.

These records are often made on loose-leaf books, the inspector turning in daily all readings, starting with a new lot of loose leaves in his folder each day, thereby enabling the accounting department to render bills expeditiously.

ON AND OFF BOOK.

This book is arranged in a columnar manner, with columns for service number, name of customer, location, fixtures (on, off), amount of rates, signature of customer, remarks.

These records can be kept in a bound book or on block form of loose leaves manifolded, the manifold copy being sent daily to the bookkeepers to make proper entry in the registers of the services which are reported to the office as "on" or "off." If kept in bound book, abstract of the daily changes should be sent to the bookkeepers.

For large works, it would be advisable to have separate books for services "on" and services "off."

CASH BOOK, JOURNAL, AND LEDGER.

These three books can be combined in one volume or binding, for a small works, allotting the first part to cash, second to journal, and the last part to ledger, in the proportion of one half, one eighth, and three eighths, respectively.

The journal and ledger are of the usual ruled form, but the cash book is arranged in a columnar manner, both on the debit and credit sides, thereby making it a "cash ledger."

The "expense" account column is for use in case of sale of any supplies by the superintendent which were previously charged to that account, such as oil, waste, postage, etc., and for rebates on insurance.

For credit side:

EXPENSE				
OIL	WASTE	RENT	INSURANCE	MISCELLANEOUS

REPAIRS AND RENEWALS				
PUMP STATION	MAINS	SERVICE PIPES	METERS	RESERVOIRS
				FILTERS
				MISCELLANEOUS

SALARIES AND WAGES			
PUMP STATION	FILTER	OFFICE	GENERAL

FUEL	TAXES	INTEREST AND DISCOUNT
------	-------	-----------------------

CONSTRUCTION				OTHER LEDGER ACCOUNTS
EXTENSION OF MAINS	SERVICE PIPES	METERS	TOOLS	MISCELLANEOUS

The total of the respective columns, excepting only "Other Ledger Accounts" column, can be summarized at any given period, and posted by one entry direct to the ledger, thereby avoiding a great deal of unnecessary bookkeeping.

The column "Other Ledger Accounts" is intended for any personal or impersonal accounts with which it is desired to open an account in the ledger, and requires separate posting for each account entered in this column.

If payments are made by check, with voucher attached, columns can be inserted for the "Voucher No." and "Total of Voucher," if desired.

The two blank columns referred to on both debit and credit sides are for use in the case of opening any new active ledger accounts not enumerated above, which are of a temporary character, such as:

For debit side:

Cash received for the rent of any land, buildings, tools, or apparatus, etc., which are owned by the company.

Cash received for notes issued.

Cash received from the sale of notes receivable.

Cash received from the sale of any securities, such as bonds, stocks, etc.

For credit side:

Cash payments for notes taken up.

Unusual payments for the purchase of securities, such as bonds for sinking fund, the retiring of any stocks, etc.

Unusual payments for extensive repairs, such as overhauling the pumping machinery, or on account of a serious break in the mains, for which it may be desired to segregate the cost of such extraordinary repairs to determine the exact cost of same, apart from ordinary items of repairs or renewals.

If it is desired to have the accounts under the units of Pumping Station, Distribution System, Fixed Charges, General Expenses, and Construction, the headings for the credit side of cash book, or the headings for the accounts payable book or distribution book, if accounts are kept by the controlling method, may be as follows:

Pumping Station						
WAGES		FUEL	OIL AND WASTE	MISCELLANEOUS	REPAIRS, RENEWALS AND MAINTENANCE	
STATION	FILTER				APPARATUS AND MCH'Y	PUMPING STATION
						FILTERS

Distribution System				
REPAIRS, RENEWALS AND MAINTENANCE				
RESERVOIRS	PIPE LINES	SERVICE PIPES	METERS	MISCELLANEOUS

Fixed Charges	
INTEREST AND DISCOUNT	TAXES

General Expenses				
SALARIES		RENT	INSURANCE	MISCELLANEOUS
OFFICE FORCE	EXECUTIVE OFFICERS			

Construction				
EXTENSIONS OF PIPE LINES	SERVICE PIPES	METERS	APPARATUS AND MACHINERY	TOOLS
				MISCELLANEOUS

ACCOUNTS PAYABLE, VOUCHERS PAYABLE, OR DISTRIBUTION BOOK.

In lieu of making distribution of accounts in the cash book, open what is termed either an accounts payable, vouchers payable, or distribution book, which have practically the same ledger headings as the credit side of the cash book herein outlined, and make distribution of the invoices or vouchers under the suggested headings, opening account with said book in the main ledger by the controlling method.

This method is recommended only for the larger quasi-public corporations, the smaller ones being able to condense their accounts in a less number of books by reducing the number of ledger headings.

When the ledger headings and subdivisions of same are numerous, the accounts should be either numbered or lettered, which facilitates and expedites the entering, posting, and classification of same.

VOUCHER, CHECK, AND DISTRIBUTION.

The voucher, check, and distribution should be printed on the face of a sheet, thereby enabling one to make computations and distribute the amount to the appropriate accounts without being compelled to turn the sheet over or upside down to enter the distribution or make comparisons, thus minimizing the liability of error, as it can be readily seen at a glance that the items of the distribution and total thereof correspond with the amount of the voucher and check.

In case the voucher is to be folded for filing purposes after payment, there should be printed on the back, "Voucher No."

CLASSIFICATION OF REVENUE, OPERATION AND MAINTENANCE, FIXED CHARGES AND CONSTRUCTION.

REVENUE OR INCOME.

- (A) *Water.*
- (B) *Meter Rentals.*
- (C) *Service Pipes.*
- (D) *Taps.*

Account (A).

To include all receipts for metered water, unmetered water, or rates on a fixture, valuation, room, frontage, or other basis; public hydrant rental or service, for the payment of which the city or town is responsible; private hydrants, rental of hydrants on private property, and flat rates for automatic sprinklers or private fire-service pipes;* flushing streets or sewers; street sprinkling; sale of all water, not otherwise accounted, to boats by the barrel, tank, or meter; to contractors for temporary use of water, where it would not pay to install a meter; and transient customers, such as circuses, etc.

Account (B).

To include all receipts for rent of meters of any kind, or any other apparatus by which water is measured which are furnished by the company.

Account (C).

To include all receipts for sale of service pipe and fittings and labor in laying and connecting same with the system.

Account (D).

To include all receipts for tapping mains, should the works charge customer therefor.

* In manufacturing centers where there are a great many private fire-service pipes and automatic sprinklers, it would be advisable to make a separate subdivision.

EXPENDITURES FOR OPERATION AND MAINTENANCE.

(E) *Expense.*

(F) *Repairs and Renewals.*

(G) *Salaries and Wages.*

(H) *Fuel.*

Account (E).

To include all charges for oil, waste, freight, and cartage thereon; rent and care of offices; insurance of real estate and other property against fire, steam boiler, accident, and liability insurance; legal expenses; office supplies, such as account books, printing, stationery, renewals of office furniture, etc.

Account (F).

To include all charges for repairs and renewals of pumping machinery, mains, service pipes, meters, reservoirs, standpipes, including repainting, etc., filters, including cleaning and washing same, pumping station and grounds, etc.

Account (G).

To include all wages of engineers, firemen, and assistants; superintendent and assistants at filter; salaries of office force, superintendent of works and executive officers.

Account (H).

To include all charges for coal, wood, or other fuel, including the handling of same and freight and cartage thereon, delivered to the point of use.

FIXED CHARGES.

(I) *Interest and Discount.*

(J) *Taxes.*

Account (I).

To include interest on bonds and other interest-bearing securities; also interest and discount on notes and open accounts,* excluding those the proceeds of which are applied to construction.

Account (J).

To include all taxes of whatever nature assessed against the property.†

* Interest on notes and open accounts is not usually classed with fixed charges, but is included herein as a matter of convenience in accounting. If it is desired to differentiate, another account could be opened, such as "Interest and Discount on Floating Debt, etc.," or "Miscellaneous Interest."

† Some eminent authorities do not include "Taxes" under the head of fixed charges, but although variable, they are a prior lien to the interest on mortgage bonds and even to charges for operation and maintenance. They are fixed in the sense of the familiar quotation, "Nothing is certain but death and taxes."

CONSTRUCTION.

(K) *Extensions of Mains.*

(L) *Service Pipes.*

(M) *Meters.*

(N) *Tools.*

(O) *Miscellaneous.*

Account (K).

To include the cost of all pipes, gates, hydrants, special castings, lead, yarn, packing, fuel (for melting lead), freight and cartage thereon, trenching, paving, and labor in extending the pipe system, together with the cost of supervision.

Account (L).

To include the cost of all new service pipes and fittings, with freight and cartage thereon, and labor in laying and connecting services with the system.

Account (M).

To include the cost of all meters, meter boxes, extension dials, freight and cartage thereon, and labor in connecting same.

Account (N).

To include the first cost of all tools and freight and cartage thereon.

Account (O).

To include the cost of all other additions to or extensions of the plant not otherwise enumerated under the head of construction, which occurs occasionally, such as the installation of pumping machinery, pipe bridge, etc., which are not renewals or replacements.

FORM OF CASH BOOK IF ACCOUNTS ARE KEPT BY THE CONTROLLING METHOD.

Debit Side.

(Form O-2)

DATE	POL. P	ITEMS	CUSTOMER'S ACCOUNTS			OTHER LEDGER ACCOUNTS

Credit Side.

DATE	POL. P	ITEMS	ACCOUNTS PAYABLE			OTHER LEDGER ACCOUNTS

The blank ruled columns on debit side are for active accounts which do not go through the "customer's registers," and for which it may be desired to open ledger accounts; those on the credit side for active accounts which do not go through the "accounts payable or distribution book" for which it may be desired to open ledger accounts.

The "other ledger accounts" column is explained under Cash Book, Journal and Ledger, Part III.

AUXILIARY BOOKS.

These books relate principally to the management and operation of a plant and have only an indirect bearing on the revenues, assets, and liabilities; nevertheless they are important as a means of ready reference, as they serve to keep down the cost of operation, and should be kept by all quasi-public corporations.

(A) CONSTRUCTION RECORD BOOK.

This book, as its name implies, shows size, kind, lengths, and locations of all pipes, hydrants, valves, valve boxes, meters, etc., which are buried in the ground to a great extent; and details and sketches of other structures, such as pumping stations, reservoirs, standpipes, filters, etc., culled from the original specifications, plans, or contract for building the same.

It contains all information which a general plan of the works should furnish, but in addition gives the details of all parts of the construction. It is assumed, however, that all works would at least have a general plan showing the pipe system and connections.

Information of this character should be a matter of record, for in case of absence, disability, or the sudden death of a manager or superintendent of a plant, who alone was the possessor of this data, emergencies might arise, such as a break in the mains, which might cause loss by flood alone running into the thousands of dollars. It serves also as a record of the invisible property. Simply as a means of ready reference even to one conversant with the entire system, it will economize in time and labor, and at times avoid large financial outlay to properly locate pipes and other structures which have been buried in the ground for years.

(Form P)

Construction Record Book
For Year ending December 31, 1905

સર્વિસ

LOCATION			DIAMETERS AND LENGTHS											
IN STREET	FROM	TO	60-INCH	48-INCH	48-INCH	40-INCH	38-INCH	30-INCH	24-INCH	20-INCH	18-INCH	16-INCH	12-INCH	
MAIN	RESERVOIR	MAIN ST.	1072.6											
MAIN ST.	COURT	WEST	499.											
WEST	WASHINGTON	TREMONT		2000										
TREMONT	WEST	BOYLESTON			4080									
BOYLESTON	TREMONT	EXETER				8800								
	40.	40.												
TOTAL			1972.6	2000	4080	8800								
LESS TAKEN UP					500									
BALANCE FORWARD			1972.6	2000	8580	8800								

[illegible]

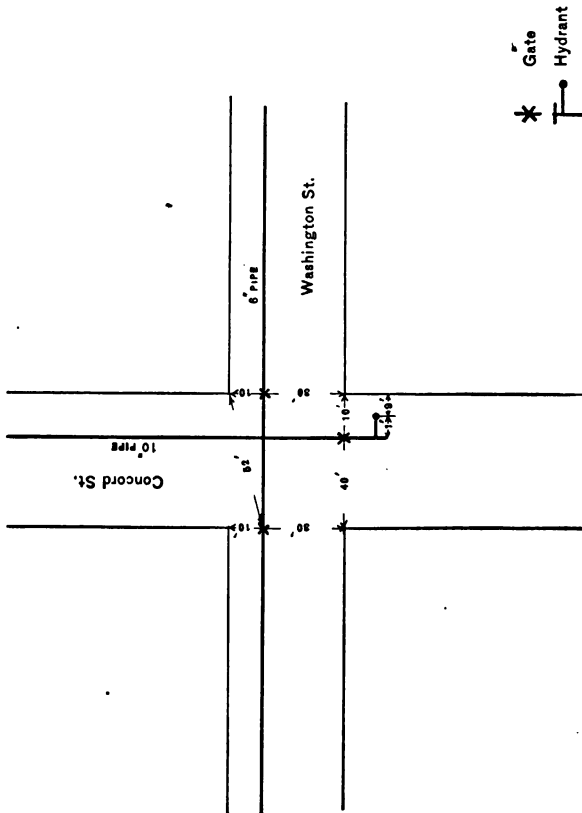
WEIGHT PER LENGTH(PER CONTRACT)														KIND	DEPTH L&D	AVERAGE PRESSURE		REMARKS
																HIGH SERVICE	LOW SERVICE	
60	inch	L&D	100	48	inch	L&D	100	36	inch	L&D	100	24	inch	L&D				
48	inch	L&D	100	40	inch	L&D	100	32	inch	L&D	100	24	inch	L&D				
36	inch	L&D	100	32	inch	L&D	100	24	inch	L&D	100	16	inch	L&D				
24	inch	L&D	100	24	inch	L&D	100	16	inch	L&D	100	8	inch	L&D				
16	inch	L&D	100	16	inch	L&D	100	12	inch	L&D	100	6	inch	L&D				
12	inch	L&D	100	12	inch	L&D	100	8	inch	L&D	100	4	inch	L&D				
8	inch	L&D	100	8	inch	L&D	100	6	inch	L&D	100	3	inch	L&D				
6	inch	L&D	100	6	inch	L&D	100	4	inch	L&D	100	2	inch	L&D				
4	inch	L&D	100	4	inch	L&D	100	3	inch	L&D	100	1	inch	L&D				
3	inch	L&D	100	3	inch	L&D	100	2	inch	L&D	100	1	inch	L&D				
2	inch	L&D	100	2	inch	L&D	100	1	inch	L&D	100	0	inch	L&D				
1	inch	L&D	100	1	inch	L&D	100	0	inch	L&D	100	0	inch	L&D				
0	inch	L&D	100	0	inch	L&D	100	0	inch	L&D	100	0	inch	L&D				

(B) GATE BOOK.

This book is in the nature of a small sketch book, which can be carried in the pocket, showing the location of gates and hydrants by streets, also plugged branches, and is invaluable to a superintendent, as it obviates the necessity of consulting the plans continuously. If more than one copy of the book is desired, the original sketch can be made on tracing cloth and blue-prints made therefrom at a small expense for any number of books. They should be indexed by streets. For a large works, gate books should be allotted to each division or section.

Form P-2.

Form Gate or Valve Book



(C) PUMPING STATION RECORD BOOK.

This is kept by the engineer or his assistant, which shows the time of pumping, number of revolutions of the pump, kind of coal and amount used, number of gallons of water pumped daily, pumping lift, etc.

Computations from this data can be made which will show the amount of water pumped during the year, either by water or steam power, and whether the pump is performing duty equivalent to its rated efficiency. If not, there is a loss in delivery, which is commonly called "slip," and it would be advisable to have the pump tested and put in repair, thereby keeping down operation charges in reducing the amount of coal consumed, wear and tear on pumping machinery, and additional cost of extra engineering force.

(D) FILTER RECORD BOOK.

This book is kept by the operator at the filter plant, in a columnar manner, with columns for: day of month; duration of pumping; head on filters, before and after using; number of filters in use; water filtered in twenty-four hours; average rate of filtration per filter; amount of water used in washing filters; amount of alum used; other chemicals; compartments cleaned; turbidity; temperatures, air and water; results of analyses, and column for remarks, under which can be entered such data as when filters were scraped, replenished, or washed, number of men employed, teams, etc.

(E) METER TEST AND METER REPAIR BOOKS.

These books are in the nature of records of the comparative efficiency and durability of the different kinds of meters on the market, and can be arranged in a columnar manner, showing the size and kind of meter, maker, head, openings or size of streams measured, discharge cubic feet, percentage of loss on rated efficiency, etc., with column of remarks, under which can be entered the conditions under which the test is made, for the meter test book.

For meter repair book, columns for date set, maker, kind and size of meter, date repaired, with extended column for repairs and renewals, subdivided into columns for spindles, disks, casings, frost cases, bolts, etc., following with columns of cost and remarks.

These books can be made up in bound form, loose leaves, or data kept on cards, as seems most desirable.

(F) DETAILS OF HEADINGS FOR AUXILIARY BOOKS.

(A-1) Construction Record Book						
LOCATION			PIPES			
IN STREET	FROM	TO	KIND	DIAM.	LENGTH, FT.	DEPTH, LAID

VALVES			HYDRANTS				
MAKER	SIZE	TURN TO OPEN	NO. TURNS	MAKER	SIZE	NO. NOZZLES	NO. THREADS

Valve Boxes		
MAKER	SIZE	LENGTH

(B-1) Equipment Book,—Pumping Station						
PUMPS				ENGINES		
NO.	SIZE	KIND	RATED CAPACITY, 24 HOURS	MAKER	NO.	H. P.

BOILERS				FLY-WHEELS			
MAKER	NO.	KIND	H. P.	NO. OF TUBES	KIND OF SETTING	NO.	MAKER

BELTING			CONDENSERS			FEED PUMPS		
KIND	LENGTH, FT.	WIDTH, FT.	NO.	KIND	SIZE	NO.	KIND	SIZE

Remarks:

(C-1) Real Estate Book							
LAND		BUILDINGS			RIGHTS OF WAY		
LOCATION	NO. FEET	LOCATION	CHARACTER	DIMENSIONS	METHOD OF CONSTRUCTION	LOCATION	NO. FEET

(D-1) Miscellaneous Construction Book									
Reservoirs									
DAM		METHOD OF CONSTRUCTION		FLOWAGE AREA		CAPACITY PER MILLION GALS.			
SLOPE	WIDTH	BASE	TOP					GR.	GR.

Standpipes						
HEIGHT	DIAMETER	NUMBER COURSES	THICKNESS PLATES	KIND FOUNDATION	CAPACITY GALS.	BUILT BY

Filters									
KIND	SAND	MECHANICAL	NO. COMPARTMENTS	DEPTH	WIDTH	LENGTH	CAPACITY, 24 HOURS	METHOD OF CONSTRUCTION	REMARKS

Other details, depending on the style of Filter, — whether sand or mechanical.

Meters			
MAKER	SIZE	KIND	RATED CAPACITY

For a small plant, the record books enumerated above, viz., construction record book, equipment book, pumping station, real estate book, and miscellaneous construction record book, could be incorporated in one book, allotting the greater part of the pages to pipes, hydrants, and valves, as these records are active, due to the extensions of the system, while the other records are more of a fixed character.

If further information is desired as to the character of the fixed structures, such as reservoirs, standpipes, filtration plants, pumping and other machinery, pumping stations, etc., a dozen blank pages could be incorporated in the book, whereon sketches or diagrams could be made showing the construction and memoranda of the details thereof culled from the original specifications or contract for building same, thus having at hand convenient references when occasion requires, obviating the necessity of hunting up the original data or contract, which may have been misplaced or lost in the files of the office.

PART IV.

GAS WORKS.

By a few minor changes in the wording and headings of application book, service card, collector's report, treasurer's statement, meter book and on and off book, referred to under Part III, these are adaptable for gas works.

In lieu of plumber's card (Form C, Part III), substitute a gasfitter's card, showing about the same details as to gas fixtures connected.

The same general form of bills (Form D) can be used by the substitution of the word "gas" for "water"; also bill to have printed thereon "meter reading," "last meter reading," "difference cubic feet," "rate," and "amount due." In case company rents or sells gas stoves, gas engines, or fixtures to its customers, these items should be printed on the bill in order to economize in clerical labor.

NOTE.—For Customer's Registers see Part IX.

CASH BOOK, JOURNAL, AND LEDGER.

These three books can be combined in one volume or binding for a small company, allotting one half of the pages to cash, one eighth to journal, and three eighths to ledger. For the credit side of the cash book a short leaf should be inserted, owing to the large number of accounts thereon.

The same general forms (M and N) are recommended, with the following headings:

For debit side:

GAS		
METERS	PUBLIC LAMPS	PRIVATE LAMPS

BY-PRODUCTS		
COKE	TAR	AMMONIACAL LIQUOR

RENTS			
GAS STOVES	METERS	ENGINES	GAS LAMPS

SERVICE PIPES	EXPENSE			OTHER LEDGER ACCOUNTS

For credit side:

GENERAL EXPENSES				REPAIRS, RENEWALS AND MAINTENANCE			
Rent	Insurance	Legal	Miscellaneous	Mains	Service Pipes	Meters	Miscellaneous

MANUFACTURING EXPENSE					
SALARIES AND WAGES		Coals	Enrichers	Purifying Materials	Water
At Office	General				

TAXES	INTEREST AND DISCOUNT

CONSTRUCTION				OTHER LEDGER ACCOUNTS	
Real Estate	Apparatus and Machinery	Street Mains	Meters	Miscellaneous	

The totals of the respective columns, excepting only "other ledger accounts" column, can be summarized at any given period, and posted by one entry direct to the ledger, thereby obviating a great deal of unnecessary posting. The "other ledger accounts" column, as noted under Part III, is intended for any personal or impersonal accounts with which it is desired to open an account in the ledger, and requires separate posting for every item in this column.

If payments are made by voucher check, columns can be inserted for voucher number and total of voucher, which will balance the distribution of the check.

In lieu of making distribution of accounts in the cash book where there are so many accounts and subdivisions, which may make the book too cumbersome to handle, a distribution book, accounts payable, or vouchers payable book could be opened and distributions made under the suggested headings for all disbursements, opening account with said book in the main ledger by the controlling method. (See Controlling Method and Accounts Payable, Vouchers Payable, or Distribution Book under Part III.)

The accounts should also have a designating number or letter, as found most convenient, which would materially assist in the entering, posting, and classification.

CLASSIFICATION OF REVENUE, OPERATION AND MAINTENANCE, MANUFACTURING, FIXED CHARGES, AND CONSTRUCTION.

REVENUE OR INCOME.

- (A) *Gas.*
- (B) *By-Products.*
- (C) *Rents.*
- (D) *Service Pipes.*

Account (A).

To include all receipts for metered gas and unmetered gas for public or private lamps, either by moonlight or other schedules.

Account (B).

To include all receipts from the sale of the by-products, such as coke, tar, and ammoniacal liquor.

Account (C).

To include all receipts from the rentals of gas stoves, meters, engines, gas lamps, etc.

Account (D).

To include all receipts for sale of service pipes and fittings and labor in laying and connecting same with the system.

EXPENDITURES FOR OPERATION AND MAINTENANCE.

(E) *General Expenses.*

(F) *Repairs, Renewals, and Maintenance.*

(G) *Salaries and Wages.*

Account (E).

To include all charges for rent and care of offices; insurance of real estate and other property against fire, steam boiler, accident and liability insurance; legal expenses, including therein damages to persons and property; office supplies, such as account books, printing, stationery, renewals of office furniture, postage, etc.

Account (F).

To include all charges for repairs, renewals, and maintenance of mains, service pipes, meters, gas lamps, etc., together with cost of all labor and supplies necessary therefor, including freight and cartage, *excluding* only repairs, renewals, and maintenance of manufacturing plant.

Account (G).

To include the salaries and wages of inspectors, meter readers, collectors, office force, and executive officers, etc., *excluding* salaries and wages at manufacturing plant.

MANUFACTURING EXPENSES.**(H) *Manufacturing Expenses.****Account (H).*

To include charges for coals, enrichers, purifying materials, etc., delivered to the works; water; salaries and wages at works; repairs, renewals, and maintenance of works, etc.

FIXED CHARGES.**(I) *Interest and Discount.*****(J) *Taxes.****Account (I).*

To include all interest on bonds and other interest-bearing securities; also interest and discount on notes and open accounts, except interest and discount on notes, the proceeds of which are applied to construction.*

Account (J).

To include all taxes of whatever nature assessed against the property.*

CONSTRUCTION.**(K) *Real Estate.*****(L) *Apparatus and Machinery.*****(M) *Extension of Street Mains.*****(N) *Meters.*****(O) *Miscellaneous.****Account (K).*

To include the cost of all land, buildings, wharves, etc., of whatever nature, with their necessary equipment, such as elevators, etc., and any improvements or additions thereto.

* See note under Water Works Classification.

Account (L).

To include the cost of the installation of all machinery and manufacturing appliances, with any additions or improvements thereof.

Account (M).

To include the cost of all pipes, gates, special castings, lead, packing, fuel (for melting lead), and freight and cartage thereon, together with the cost of all trenching, paving, and labor in extending the street mains, including the supervision thereof.

Account (N).

To include the cost of all meters, meter boxes, extension dials, freight and cartage thereon, and labor in connecting same, and the supervision thereof.

Account (O).

To include the cost of manholes and all other additions to or extensions of the plant not otherwise enumerated under the head of construction.

AUXILIARY BOOKS.

Under this head, the construction record (Forms P and P-1) and gate book(Form P-2) are deemed imperative, as emergencies daily arise, especially in the large cities, where immediate location of the gas mains and connections demands accurate knowledge, so that leaks can be repaired at the earliest possible moment.

(A) Construction Record Book.

LOCATION			PIPES				
STREET	FROM	TO	KIND	DIAM.	LENGTH	DEPTH LAID	WEIGHT PER FOOT

VALVES OR GATES				VALVE BOXES		
SIZE	TURN TO OPEN	NO. THREADS	MAKER	SIZE	LENGTH	MAKER

GAS LAMPS			GAS STOVES		GAS ENGINES	
SIZE	KIND	DIS. APART	KIND	SIZE	KIND	SIZE

(B) Equipment Book — Manufacturing Plant.

RETORTS				PURIFIERS				
KIND	NUMBER	NO. OF BENCHES	MAKER	NO.	LENGTH	WIDTH	DEPTH	MAKER

BOILERS					
NO.	KIND	H. P.	NO. TUBES	SETTING	MAKER

GAS HOLDERS					
NO.	LOCATION	DIMENSIONS	METHOD CONSTRUCTION	CAPACITY	BUILT BY

(C) Real Estate Book.

LAND		BUILDINGS				
LOCATION	NO. OF FEET	KIND	LOCATION	CHARACTER	DIMENSIONS	METHOD OF CONSTRUCTION

RIGHTS OF WAY		
LOCATION	DESCRIPTION	NO. FEET

(D) Valve or Gate Book.

This book is in the nature of a sketch book, showing the location of all gates by streets, also the mains and sizes thereof, and can be carried easily by the superintendent in his pocket. The original sketches for gate book can be made on tracing paper, and blue-prints made therefrom for any number of gate books. For a large plant, gate books should be allotted to each division, and the manager or superintendent of each division furnished with one or two copies of same, showing the gates and connections in his particular division.

It is also advisable to have the general construction record book divided into divisions, and each superintendent of a division furnished with a copy thereof. This is absolutely necessary for a large city.

(E) Meter Test and Meter Repair Books.

These books are arranged in a columnar manner, showing the date of test, maker, size, kind, discharge cubic feet, percentage of loss on rated efficiency, remarks, — for meter test book.

For meter repair book, columns for date set, maker, kind, and size, date repaired, with extended column for repairs and renewals, subdivided to show all the details desired of the repair or renewal of parts of the meter.

These can be made up in bound form, or data kept on loose leaves or cards, as seems most desirable, not bearing any records pertaining directly to the finances.

(F) Manufacturing Book.

This book is arranged in a columnar manner, running daily, by months, with columns for date, process used, number hours making gas, coal carbonized; subdivided into columns,—kind, amount, quality, amount used by company for other purposes; enrichers,—kind, quality, and amount; purifying materials; water; number cubic feet gas manufactured; number cubic feet gas sold; number cubic feet gas unaccounted for; percentage unaccounted for; residuals,—coke, tar, and ammoniacal liquor; average pressure on mains,—day and night; average candle power of gas, and column for remarks.

For a small plant the record books, viz., construction record book, equipment book, —manufacturing plant, and real estate book, can be incorporated in one book, allotting the greater part of the pages to pipes, valves, gas lamps, etc., these records being active, due to the extensions of the system; while the other records are more of a fixed character.

If further information is desired as to the character of the fixed structures, such as apparatus and machinery, gas holders, etc., a few blank pages can be incorporated in the book, whereon small sketches or diagrams could be made showing the method of construction and memoranda of the details thereof, culled from the original specifications, plans, or contract for building the same, thereby having immediate access to this data when occasion requires, obviating the necessity of hunting up the original papers, which may have been misplaced or lost in the office files.

FORM OF REPORT REQUIRED BY GAS AND ELECTRIC LIGHT COMMISSIONERS OF MASSACHUSETTS.

(Form 107)

Please give full corporate title of company,
 Date of organization, if since June 30, 1903,
 Date when company began to sell gas or electric light, if since June 30, 1903,
 Date or dates during the year of the return when capital was paid in,
 Location of principal business office,
 Names of the cities or towns supplied with gas by the company, with number
 of consumers' meters in each place,
 Names of the cities or towns supplied with electricity by the company, with
 number of customers (*not including the city or town*) in each place,

LIST OF SALARIED OFFICERS.

NAME.	OFFICIAL POSITION.	ANNUAL SALARY.

SCHEDULE A.—CAPITAL, DEBTS, COST OF PLANT, JUNE 30, 1905.

CAPITAL.

1. Capital authorized by charter \$
2. Capital authorized by vote of company
3. Capital paid in:

shares, par value, \$	\$
-----------------------	----

Whole number of stockholders

Number of stockholders resident in Massachusetts,

Amount of stock held in Massachusetts, shares.

Amount of stock held by parent electric company, shares.

DEBITS.

4. Bonds or notes issued,* viz.:

DATE.	WHEN DUE.	HOW SECURED	RATE OF INTEREST	AMOUNT.
				\$

5. Total amount of bonds and notes \$
6. Other permanent debts, if any * \$
7. Capital paid in (as per item 3) \$
8. Total liability for capital and loans \$

* This should not include deposits, unpaid interest, dividends, amounts due or notes given for coal or other current supplies.

COST OF PLANT.

(As the accounts stand on the books of the company at the close of business June 30, 1905.)

Gas Works:

9. Cost of real estate \$
10. Cost of machinery, apparatus, and other appliances used in the manufacture of gas
11. Cost of street mains
12. Cost of meters
13. Total cost of gas plant as per books of the company June 30, 1905

Electric Works:

14. Cost of real estate
15. Cost of steam plant
16. Cost of electric plant
17. Cost of lines
18. Cost of transformers
19. Cost of meters
20. Cost of arc lamps
21. Total cost of electric light plant as per books of the company June 30, 1905

Other Works:

22. Cost and description of other permanent works, if any
23. Total cost of all plant as per books of the company June 30, 1905
24. Amount (if any) charged to construction accounts during the year

COMPARISON OF VALUES.

25. Value of gas works real estate, as assessed in the city or town where located \$
26. Value of electric works real estate, as assessed in the city or town where located
27. Value of other gas works property, as assessed in the city or town where located
28. Value of other electric works property, as assessed in the city or town where located
29. Value of any other property, as assessed in the city or town where located
30. Total value of plant, as assessed by local assessors May, 1905
31. Excess of * value, over * value
32. Cost of plant † than capital and loans

* This blank to be filled with the word "assessed" or "cost," as required.

† This blank to be filled with the word "more" or "less," as required.

SCHEDULE B.—STATEMENT OF INCOME AND EXPENSES.

GAS. — EXPENSES.

For Manufacture of Gas:

- | | | |
|---|-----------------|---|
| 1. Coals (other than those used for enriching), including all expenses of depositing at works | { coal gas . \$ | } |
| | { water gas . | |
| 2. Enrichers { coal | | |
| | { oil | |
| 3. Purifying materials | | |
| 4. Water | | |
| 5. Wages at works | | |
| 6. Repairs and maintenance of works (including renewal of retorts) | | |
| 7. Apparatus and machinery (station tools and appliances) | | |

For Distribution of Gas:

- | | |
|---|---|
| 8. Wages of meter takers, clerical labor in this department, and salary or commission of collectors | |
| 9. Repairs, renewals, and maintenance of mains and service pipes | |
| 10. Distribution tools and appliances. | |
| 11. Repairs and renewals of meters { repairs | } |
| | |
| 12. Gas stove fixing, repairs and renewals | |

For Public Lamps:

- | | |
|--|--|
| 13. Lighting and repairing (gas lamps only) | |
| 14. Lighting and repairing and material used for other lamps | |

For Office Expenses and Management:

- | | |
|--|--|
| 15. Directors' allowances | |
| 16. Salaries of officers | |
| 17. General salaries | |
| 18. Rent of offices not owned by company | |
| 19. General office expenses | |

For Miscellaneous Expenses:

- | | |
|-----------------------------------|----|
| 20. Taxes. Town or city | \$ |
| Corporation | |
| State commission | |
| 21. Insurance { fire | \$ |
| | |
| 22. Law expenses | \$ |
| 23. Claims | |
| 24. Bad debts * | |
| 25. Incidental expenses, viz.:† | |

- | | |
|---|----------|
| a | |
| b | |
| 26. Gas bought of | Company, |
| 27. Total expenses | |
| 28. Balance to profit and loss | |
| Total Debits | |
| Ratio of operating expenses to gross earnings | |

* Only those included in Income statement, page 79.

† To include only such items of expenses attending the manufacture and sale of gas as are not already given.

GAS. — INCOME.

For the year ending June 30, 1905.

From sale of Gas:

1. Supplied by meter, —				
feet @ \$		per M feet.	..	.\$
" "	\$	" "	..	.
" "	\$	" "	..	.
" "	\$	" "	..	.
" "	\$	" "	..	.
" "	\$	" "	..	.
<i>Total</i>	..	..	..	..
Less discounts for prompt payments	..	..	..	..
Plus prompt payment discounts lost	..	..	..	..
2. <i>Net total from sales by meter</i>	..	..	..	..
3. For public lamps, estimated	feet @			
per M feet.	..	..	..	..
4. Under contract, estimated	feet @			
per M feet.	..	..	..	..
5. Sold to other companies:				
Light Co.,	feet @	per M	.	.
" "	" "	" "	.	.
" "	" "	" "	.	.
" "	" "	" "	.	.
<i>Total</i>	..	..	..	..
6. <i>Total from sale of gas</i>	..	..	..	..

From Residual Products:

7. Coke }	tons to electric department	..	.
	tons sold elsewhere.	..	.
8. Tar,	gallons	..	.
9. Ammoniacal liquor	..	..	.
10. <i>Total from residuals</i>	..	..	..

From Other Sources, viz.:

11. Rent of meters	..	..	..
12. " gas stoves and engines	..	..	..
13. " gas lamps	..	..	..
14. Public lamps other than gas lamps	..	..	..
15.* <i>Total income</i>	..	..	..
Balance to profit and loss (if deficit)	..	..	..
<i>Total credits</i>	..	..	..

*Such items of income arising only from the manufacture and sale of gas as are not included above.

**SCHEDULE BB.—STATEMENT OF INCOME AND EXPENSES FOR THE
YEAR ENDING JUNE 30, 190 .**

ELECTRIC. — EXPENSES.

For Manufacture:

1. Coal or other fuel, including all expenses of depositing at works \$
2. Rentals for { real estate
- { water power
3. Oil and waste
4. Water
5. Wages at station
6. Station repairs
7. Steam plant repairs
8. Electric plant repairs
9. Apparatus and machinery (station tools and appliances)

For Distribution:

10. Wages for care of lights and meters, clerical labor in this department, and salary or commission of collectors
11. Repairs and renewals of lines
12. Repairs and renewals of meters, lamps, and motors
13. Distribution tools and appliances
14. Carbons
15. Incandescent lamps

For Office Expenses and Management:

16. Directors' allowances
17. Salaries of officers
18. General salaries
19. Rent of offices, if separate from plant
20. General office expenses

For Miscellaneous Expenses:

21. Taxes. Town or city
- Corporation \$
- State commission
22. Insurance { Fire \$
- { Employer's liability,
23. Law expenses
24. Claims
25. Bad debts *
26. Incidental expenses, viz.: †
- a Other cost incidental to steam heating
- b
27. Current bought of Company,
28. Total expenses
29. Balance to profit and loss

Total debits

Ratio of operating expenses to gross earnings

* Only those included in Income statement, page 81.

† To include only such items of expenses attending the manufacture and sale of ELECTRICITY as are not already given.

ELECTRIC.—INCOME.

1. From commercial arc lights by contract . . . \$	\$
Less discounts or rebates allowed . . .	
2. From commercial incandescent lights by contract . . .	
Less discounts or rebates allowed . . .	
3. From commercial arc and incandescent lights by meter . . .	
Less discounts or rebates allowed . . .	
4. From public arc lights . . .	
Less discounts or rebates allowed . . .	
5. " public incandescent lights . . .	
Less discounts or rebates allowed . . .	
6. " electric power { for railways . . .	
other uses . . .	
Less discounts or rebates allowed . . .	
<i>Total</i>	
7. Amount of current sold to other companies:	
Electric Light Co., kilowatts,	
" " " "	
<i>Total net from light and power</i>	
<i>From Other Sources, viz.:</i>	
8. Rent of fixtures	
9. Rent of meters	
10. Steam heating	
11.*	
<i>Total credits</i>	
Balance to profit and loss (if deficit)	
<i>Total</i>	

*Such items of income arising only from the electric light and power business as are not included above.

**SCHEDULE C.—PROFIT AND LOSS ACCOUNT FOR THE YEAR
ENDING JUNE 30, 190 .**

DEBIT.

For balance from last account (if any), June 30, 1904	\$
„ interest paid and accrued on bonds, notes, loans, and deposits, to June 30, 1905	
„ dividends declared on stock, viz.:	
per cent, due	
per cent, due	
per cent, due	
per cent, due	
For depreciation:	
Gas plant	
Electric plant	
For other items, giving particulars, viz.:	
For amount carried to reserve fund	
„ „ „ „ depreciation fund	
„ total amount of debit . . . . .	.
„ balance (if surplus)	
<i>Total debit.</i>	<u>\$</u>

CREDIT.

By balance from last account (if any), June 30, 1904.	\$
„ balance of income as per item 28, Schedule B, gas business.	\$
„ balance of income as per item 29, Schedule BB, electric business	
„ interest received on loans or deposits.	
„ rents	
„ other items, giving particulars, viz.:	
Total amount at credit	
By balance (if deficit)	
<i>Total credits</i>	<u>\$</u>

SCHEDULE D.—RESERVED FUND ACCOUNT.

CREDIT.

1. By balance of account June 30, 1904	\$
2. By income during the year from amount invested	
3. By amount transferred from profit and loss account	
	<u>\$</u>

DEBIT.

4. For *	\$
5. Balance, June 30, 190	
	<u>\$</u>
6. How is fund invested?	

* Any sums charged to this account during the year ending June 30, 1905, stating the purpose for which the same were used.

SCHEDULE E.—DEPRECIATION FUND ACCOUNT.

CREDIT.

By balance of account June 30, 1904 \$
 By amount transferred from profit and loss account _____

\$ _____

DEBIT.

For * \$

For balance June 30, 1905

\$ _____

How is fund invested?

* Any sums charged to this account during the year ending June 30, 1905, stating purpose for which used.

SCHEDULE F.—BALANCE SHEET.

ASSETS.

From return of
1904.

\$	Real estate (gas)	\$
	Machinery and manufacturing appliances (gas)	
	Street mains (gas)	
	Services (gas)	
	Meters (gas)	
	Due for gas *	
	Gas coal on hand	
	Coke on hand	
	Tar on hand	
	Enrichers on hand	
	Purifying materials on hand	
	Other gas materials on hand	
	Stoves on hand	
	Gas fixtures on hand	
	Real estate (electric)	
	Steam plant (electric)	
	Electric plant	
	Electric lines	
	Transformers	
	Electric meters	
	Arc lamps	
	Patent rights	
	Due for electric light and power *	
	Fuel on hand (electric light)	
	Carbons on hand	
	Oil and waste on hand	
	Incandescent lamps on hand	
	Globes on hand	
	Other electric materials on hand	
	Motors on hand	
	Electric fixtures on hand	
	Horses, wagons, etc.	
	Sundry accounts due the company	
	Office furniture	
	Cash on hand	
	Notes receivable	
\$	Investments (giving particulars thereof)†	

Total assets as per books of the company . . \$

Profit and loss balance (if deficit)

\$ Total debits \$

* These items should include the amount of all bills for gas and electric light and power for the month or quarter ending June 30.

† Including any real estate so held.

JUNE 30, 1905.

LIABILITIES.

From return of
1904.

\$	Capital stock	\$
	Bonds issued	
	Coupon notes *	
	Other notes payable *	
	Unpaid bills	
	Deposits by customers	
	Unpaid dividends	
	Interest due but not paid	
	Interest accrued but not due	
	Reserved fund	
	Depreciation fund	
	Amounts due from the company, not included above	
\$	Total liabilities as per books of the company	\$
	Profit and loss balance (if surplus)	
\$	Total credits	\$

* State whether secured by mortgage or not.

GENERAL INFORMATION.—GAS.

Location of gas works,
Area of land occupied,
Number of retorts,

viz.:

benches of 1 each.	benches of 4 each.	benches of 7 each.
benches of 2 each.	benches of 5 each.	benches of 8 each.
benches of 3 each.	benches of 6 each.	benches of 9 each.

Number of benches rebuilt during the last year,

How long were such benches in actual use?

Average number of retorts employed from October to March, inclusive,

Average number of retorts employed the remainder of the year,

Description of purifiers,

No.	Length,	Width,	Depth,
No.	Length,	Width,	Depth,

Materials used in purifiers,

Total amount of lime used during the year, bushels.

Quantity of gas purified per bushel of lime,

Estimated total cost for the year of iron sponge used, \$

Estimated total quantity of gas purified per bushel of iron sponge,

Number of holders and their location, viz.:

No.	LOCATION *	OPEN OR COVERED	DIMENSIONS	WORKING CAPACITY

* If not "at works" give the distance therefrom.

GENERAL INFORMATION.—Gas continued.

Sizes of Street Mains, and lengths of each size in feet, viz.:

SIZES, DIAMETERS	TOTAL LENGTH IN FEET, JUNE 30, 1904	TAKEN UP SINCE	LAI D SINCE	TOTAL LENGTH IN FEET, JUNE 30, 1905
1 inch,				
1½ "				
1½ "				
2 "				
2½ "				
3 "				
4 "				
6 "				
8 "				
10 "				
12 "				
14 "				
16 "				
18 "				
20 "				
24 "				
30 "				
36 "				
42 "				
48 "				
54 "				
<i>Totals,</i>				

GENERAL INFORMATION.—Gas continued.

Estimated capacity of works per diem,	{ Acetylene gas, Coal gas, Water gas,	
Number of feet of gas on hand June 30, 1904. . .		
Number of feet made during the year,	{ Acetylene gas, Coal gas, Water gas,	
Number of feet bought		
		<i>Total . .</i>
Number of feet of gas sold by meter during the year		
Number of feet of gas sold to other companies during the year		
Number of feet of gas supplied to public lamps during the year.		
Number of feet of gas used at works and offices during the year		
Number of feet of gas used in the mills of the company* during the year		
Number of feet of gas on hand June 30, 1905. . .		
		<i>Total . .</i>
Number of feet of gas unaccounted for during the year . . .		
Greatest output in 24 hours, with date of same		
Least output in 24 hours, with date of same		
Number of feet of gas sent out in the daytime during the year,		
Length and sizes of mains laid during the year for which contributions have been required from consumers, and amount of such contributions		

* This question will require an answer only from companies engaged in other manufactures.

GENERAL INFORMATION.—Gas continued.

Capacity of Meters and number of each size in use, viz.:

SIZE, No. OF LIGHTS	No. IN USE JUNE 30, 1904	REMOVED SINCE	ADDED SINCE	NUMBER IN USE JUNE 30, 1905	NUMBER METER L'TS JUNE 30, 1905
2					
3					
5					
10					
20					
25					
30					
35					
40					
45					
50					
60					
80					
100					
125					
150					
180					
200					
250					
300					
400					
500					
<i>Totals,</i>					

GENERAL INFORMATION.—Gas continued.

- Is any meter rent charged, and what is the rule governing such charge?
 Number and size of prepayment meters in use:
 3 Lts., 5 Lts., 10 Lts., 20 Lts. Total,
 Number of gas stoves used by consumers during the year?
 Number of stoves leased by the company?
 Number of high candle power lamps used by consumers during the year?
 Number of such lamps leased by company?
 Rental price of same per lamp?
 Number of gas engines used by consumers during the year?
 Number of gas engines leased by company?
 Rental price of same?
 Usual day pressure on street mains, as indicated at works?
 Usual night pressure on street mains, as indicated at works?
 Average candle power of the gas, as determined by state inspector?
 Gross price per 1,000 feet at the close of the year?
 Are discounts allowed, and if so, how are they made?
 What changes have been made in price or discounts during the year, and when made?
 Number of public gas lamps supplied at close of year?
 Price for public gas lamps?
 Estimated hourly consumption of each lamp, cubic feet.
 Estimated number of hours during the year that each lamp is lighted?
 Kind of burner principally used on public lamps?
 Number and kind of public lamps other than gas or electric lamps maintained by the company?
 Kinds of coal carbonized (not including those for making water gas)?
 Proportions of each, if used together?
 Kind of gas coal used?
 What materials were used for enriching the coal gas?
 Amount of each per ton of coal carbonized?

STATEMENT OF COAL GAS MATERIALS FOR YEAR ENDING JUNE 30, 1905.

	ON HAND JUNE 30, 1904	RECEIVED DURING THE YEAR	CARBON- IZED DURING THE YEAR	UN- ACCOUNTED FOR	ON HAND JUNE 30, 1905	AVERAGE COST PER TON OF 2,240 LBS. OF EACH KIND USED AT THE WORKS
Enriching coals	Tons	Tons	Tons	Tons	Tons	
Other gas coals						
Naphtha . .	Gals.	Gals.	Gals.	Gals.	Gals.	AVERAGE COST PER GALLON OF EACH KIND USED AT THE WORKS
Other oils . .						

GENERAL INFORMATION.—Gas continued.

Statement of Residual Products for the year ending June 30, 1905.

	ON HAND JUNE 30, 1904, ESTIMATED	MADE DURING THE YEAR, ESTIMATED	USED DURING THE YEAR, ESTIMATED	SOLD DURING THE YEAR	ON HAND JUNE 30, 1905, ESTIMATED
Coke, tons					
Tar (coal gas), gallons. .					
Tar (water gas), gallons .					
Ammoniacal liquor, gallons					

Prices now obtained for residuals:

Tar per gallon (coal gas),	\$	Tar per gallon (water gas),	\$
Coke, per bush. . . .	\$	Ammoniacal liquor per gallon	\$

Average number of men employed, viz.:

APRIL TO SEPTEMBER	OCTOBER TO MARCH	HOW EMPLOYED *

* Whether foremen, stokers, yardmen, etc.

GENERAL INFORMATION.—Gas continued.

ONLY THOSE COMPANIES MAKING "WATER GAS" ARE TO ANSWER THE QUESTIONS ON THIS PAGE.

What patent process, if any, is used in the manufacture of gas?

How long has such process been employed?

Is said process used alone, or as an auxiliary to the making of coal gas?

If used as an auxiliary, how often is it so used and how long each time?

At what point in the works is the gas so made mixed with the coal gas?

Total amount of water gas made during the year?

What kinds of fuel were used for *generating the gas*?

What kinds of *fuel* were used in carburetting the gas (not to include generator fuel)?

What kinds of fuel were used for *generating the steam*?

STATEMENT OF WATER GAS MATERIALS FOR YEAR ENDING JUNE 30, 1905.

	ON HAND JUNE 30, 1904	RECEIV'D DURING THE YEAR	CARBON- IZED DURING THE YEAR	UNAC- COUNTED FOR	ON HAND JUNE 30, 1905	AVERAGE COST PER TON OF 2240 LBS. OF EACH KIND USED AT THE WORKS
	Tons	Tons	Tons	Tons	Tons	
For generating the gas, coal						
" " " " coke						
" " " " " "						
" carburetting " " coal						
" " " " coke						
" generating steam, coal						
" " " " coke						
" " " " " "						
" " " " " "						
						AVERAGE COST PER GALLON OF EACH KIND USED AT THE WORKS
Naphtha	Gals.	Gals.	Gals.	Gals.	Gals.	
Other oils						
Fuel oil						

Dimensions of generator,

" " superheater,

" " condenser or washer,

Usual length of runs,

Capacity of works per hour, as observed in actual use,

GENERAL INFORMATION.—Gas, concluded.

ONLY THOSE COMPANIES MAKING "OIL GAS" ARE TO ANSWER THE FIVE QUESTIONS FOLLOWING.

What patent process, if any, is used in the manufacture of gas?

How long has such process been employed?

Kinds of coal or other fuel used?

What percentage of the gas in the holder is atmospheric air?

At what point in the works is the air mixed with the gas?

ONLY THOSE COMPANIES MAKING "ACETYLENE" GAS ARE TO ANSWER THE QUESTIONS FOLLOWING.

What type of generator is used in the manufacture of the gas?

How long has such apparatus been employed by this company?

QUANTITY OF CARBIDE USED DURING THE YEAR.

ON HAND JUNE 30, 1904	RECEIVED DURING THE YEAR	USED DURING THE YEAR	ON HAND JUNE 30, 1905	AVERAGE COST OF SAME PER LB. DELIVERED AT WORKS

GENERAL INFORMATION. ELECTRIC LIGHT.

Location of electric plant,
Area of land, and size and material of buildings occupied,
Are the same owned or leased by the company?

Description of motive power:

BOILERS.

No. of Each Kind	MAKER	KIND OF SETTING	Diameter of Shell	No. of Tubes	Diameter of Tubes	Usual Steam Pressure	Rated Horse-Power of Each	Total Rated Horse-Power
Total Horse-Power,								

ENGINES.

No. of Each Kind	MAKER.	Diameter of Cylinder	Stroke of Piston	No. of Revolutions per Minute	Rated Horse-Power of Each	Total Rated Horse-Power
Total Horse-Power,						

WATER WHEELS.

No. of Each Kind	MAKER	Diameter	Fall	Total Rated Horse-Power

GENERAL INFORMATION—Electric Light, continued.

Description of Dynamos:

	No. of Each Kind	Maker	Capacity of Each			
			In Kilo- watts	In Lamps.		Amperes
				No.	Candle Power	
Arc: Direct current,						
Arc: Alternating current,						
Incandescent: Direct current, Commercial system,						
Alternating current, Commercial system,						
Alternating current, Municipal incandes- cent system,						
Direct current, Municipal incandes- cent system,						
			Voltage	Capacity of Each in K. W.		
Power generators,						

GENERAL INFORMATION — Electric Light, continued.

DISTRIBUTION — OVERHEAD SYSTEM.

Description of the Arc Lines, Direct Current:

CIRCUITS	Length, Out and Return, in Feet	SIZE OF WIRE		ARC LAMPS INSTALLED						INCANDESCENT SERIES LAMPS			
				Public		Is Office and Station		Commercial		Amperes		Public	
		No.	Gauge	No.	C. P.	No.	C. P.	No.	C. P.	No.	C. P.	No.	C. P.
No. 1													
No. 2													
No. 3													
No. 4													
No. 5													
No. 6													
No. 7													
No. 8													
No. 9													
No. 10													
No. 11													
No. 12													
No. 13													
No. 14													
No. 15													
No. 16													
No. 17													
No. 18													
No. 19													
Totals, Totals in 1904,													

Motors on direct current arc lines No. Total Horse-Power, No.

GENERAL INFORMATION — Electric Light, continued.

DISTRIBUTION — OVERHEAD SYSTEM.

Description of the Alternating Current Lines operating only Arc Lamps:

CIRCUITS	Length, Out and Return, in Feet	SIZE OF WIRE		ARC LAMPS INSTALLED						In Office and Station		MOTORS INSTALLED		AMPERES
				Public		Commercial								
		No.	Gauge	No.	C. P.	No.	C. P.	No.	C. P.	No.	Total H. P.			
No. 1														
No. 2														
No. 3														
No. 4														
No. 5														
Totals, Totals in 1904.														

GENERAL INFORMATION — Electric Light, continued.

Description of the Alternating Current, municipal (street lighting) system, incandescent lines:

CIRCUITS	Length, Out and Return, in Feet	SIZE OF WIRE		PUBLIC LAMPS INSTALLED		IN OFFICE AND STATIONS		COMMERCIAL LAMPS INSTALLED		AMPERES
		No.	Gauge	No.	C. P.	No.	C. P.	No.	C. P.	
No. 1										
No. 2										
No. 3										
No. 4										
No. 5										
No. 6										
No. 7										
No. 8										
No. 9										
No. 10										
No. 11										
No. 12										
No. 13										
No. 14										
No. 15										
No. 16										
No. 17										
No. 18										
No. 19										
No. 20										
No. 21										
No. 22										
No. 23										
No. 24										
No. 25										
No. 26										
No. 27										
No. 28										
No. 29										
No. 30										
No. 31										
No. 32										
No. 33										
No. 34										
No. 35										
No. 36										
No. 37										
No. 38										
No. 39										
No. 40										
Totals										
Totals in 1904,										

GENERAL INFORMATION — Electric Light, continued.

Description of the Direct Current, municipal (street lighting) system, incandescent lines:

CIRCUITS	Length of Wire, Out and Return, in Feet	SIZE OF WIRE		LAMPS INSTALLED		AMPERES
		No.	Gauge	No.	C. P.	
No. 1						
No. 2						
No. 3						
No. 4						
No. 5						
No. 6						
No. 7						
No. 8						
No. 9						
No. 10						
No. 11						
No. 12						
No. 13						
No. 14						
No. 15						
No. 16						
No. 17						
No. 18						
No. 19						
No. 20						
<i>Totals</i>						
Totals in 1904,						

GENERAL INFORMATION — Electric Light, continued.

Description of the commercial low tension direct current MAINS (not upon the Edison system):

Circuits	No. of Wires	Length, in Feet, of Each Wire	SIZE OF WIRE		In Office and Station	LAMPS INSTALLED			MOTORS INSTALLED		VOLTAGE
			No.	Gauge		No.	C. P.	Amp's.	No.	Total H. P.	
No. 1											
No. 2											
No. 3											
No. 4											
No. 5											
No. 6											
No. 7											
No. 8											
No. 9											
No. 10											
Totals											
Totals in 1904											

Total length of each size of wire in FEEDERS,

GENERAL INFORMATION—Electric Light, continued.

Description of the commercial alternating current lines:

Circuits	FEEDERS			MAINS			SECONDARIES			LAMPS INSTALLED			MOTORS INSTALLED		PRESSURE WIRES		
	Length of Wire Out and Return, Feet	Size of Wire		Length of Wire Out and Return, Feet	Size of Wire		Length of Wire Out and Return, Feet	Size of Wire		Off. & Sta.	COMMERCIAL		No.	Total H. P.	Length of Wire Out and Return, Feet	Size of Wire	
No.		Gauge	No.		Gauge	No.		Gauge	No.		C. P. Amp's.	No.				Gauge	
No. 1																	
No. 2																	
No. 3																	
No. 4																	
No. 5																	
No. 6																	
No. 7																	
No. 8																	
No. 9																	
No. 10																	
No. 11																	
No. 12																	
No. 13																	
Totals																	
Totals in 1904																	

GENERAL INFORMATION — Electric Light, continued.

EDISON OVERHEAD SYSTEM.

Description of lines:

FEEDERS				MAINS				LAMPS INSTALLED			MOTORS INSTALLED	
SIZE OF WIRE		LENGTH OF WIRE, IN FEET		SIZE OF WIRE		LENGTH OF WIRE, IN FEET		OIL & SIL.	COMMERCIAL		No.	TOTAL H. P.
No.	Gauge			No.	Gauge				No.	C. P. Amp's.		
<i>Totals</i>												
Totals in 1904												

GENERAL INFORMATION — Electric Light, continued.

NO. 1010
ABSTRACT

Description of power lines (this should not include those lines described on preceding pages):

CIRCUITS	LENGTH, OUT AND RETURN, IN FEET	SIZE OF WIRE		MOTORS INSTALLED		VOLTAGE
		No.	Gauge	No.	Total H. P.	
No. 1						
No. 2						
No. 3						
No. 4						
No. 5						
Totals						
Totals in 1904 .						

Capacity of transformers and number of each size in use, viz.:

CAPACITY OF EACH IN 16 C. P. LIGHT	NUMBER IN USE JUNE 30, 1904	REMOVED SINCE	INSTALLED SINCE	NUMBER IN USE, JUNE 30, 1905
5 . .				
6 . .				
7 . .				
10 . .				
12 . .				
15 . .				
18 . .				
20 . .				
25 . .				
30 . .				
40 . .				
48 . .				
50 . .				
60 . .				
70 . .				
75 . .				
80 . .				
90 . .				
100 . .				
120 . .				
125 . .				
150 . .				
175 . .				
200 . .				
240 . .				
250 . .				
300 . .				
350 . .				
600 . .				
<i>Totals,</i>				

Total number of incandescent lamps (rated as 16 c. p.) supplied from all Edison lines,

Total number of each size of arc lamps supplied from all Edison lines,

GENERAL INFORMATION — Electric Light, continued.**DISTRIBUTION — UNDERGROUND SYSTEM.**

Description of subways or conduits owned by the company (not including Edison tubing), viz.:

SIZE OF CONDUIT	TOTAL LENGTH IN FEET INSTALLED JUNE 30, 1904	TAKEN UP SINCE	ADDED SINCE	TOTAL LENGTH IN FEET INSTALLED JUNE 30, 1905
Single duct				
2 ducts . .				
3 ducts . .				
4 ducts . .				
5 ducts . .				
6 ducts . .				
7 ducts . .				
8 ducts . .				
9 ducts . .				
10 ducts . .				
11 ducts . .				
12 ducts . .				
13 ducts . .				
14 ducts . .				
15 ducts . .				
16 ducts . .				
17 ducts . .				
18 ducts . .				
20 ducts . .				
21 ducts . .				
22 ducts . .				
24 ducts . .				
25 ducts . .				
26 ducts . .				
28 ducts . .				
29 ducts . .				
30 ducts . .				
39 ducts . .				
45 ducts . .				
54 ducts . .				
<i>Totals</i> . .				

Type of duct above described:

GENERAL INFORMATION—Electric Light, continued.

Description of cables owned by the company in underground conduits not of the Edison type:

SIZE OF CABLE	TOTAL LENGTH IN FEET INSTALLED JUNE 30, 1904	TAKEN UP SINCE	ADDED SINCE	TOTAL LENGTH IN FEET INSTALLED JUNE 30, 1905
No. 6. .				
No. 4. .				
No. 0. .				
No. 00. .				
No. 0000. .				
350,000 cm.				
500,000 cm.				
600,000 cm.				
1,000,000 cm.				
Total . .				

Number of manholes,

Number of service connections,

Number of each size of arc lamps supplied from the foregoing underground lines and not given on preceding pages, giving street and commercial lights separately,

Number of each size of incandescent lamps supplied from the foregoing underground lines and not given on preceding pages, giving street and commercial lights separately.

STORAGE BATTERIES.

Number of storage batteries in use by company,

Maker of each battery: No. 1, ; No. 2, ;

No. 3, ; No. 4, ;

Number of cells in each battery: No. 1, ; No. 2, ;

No. 3, ; No. 4, ;

Number of plates in each cell: No. 1, pos. , neg. ; No. 2, pos. ,

neg. ; No. 3, pos. , neg. ; No. 4, pos. , neg. .

Area of plates: Battery No. 1, ; No. 2, ; No. 3,

; No. 4, .

Rate of charging in amperes: No. 1, ; No. 2, ;

No. 3, ; No. 4, .

RATE OF DISCHARGING IN AMPERES	No. 1	No. 2	No. 3	No. 4
1 hour				
5 hours				
10 hours				

Voltage per cell: No. 1, max. , min. ; No. 2, max. , min. ;

No. 3, max. , min. ; No. 4, max. , min. .

GENERAL INFORMATION — Electric Light, continued.

Total number of motors supplied from all Edison lines,

Total rated horse power of such motors,

Number of company's poles set in streets or public ways,

Number of company's poles set elsewhere,

Materials used for poles,

What other means of supporting wires are used, and to what extent?

Length in feet of streets or public ways occupied by overhead lines,

Number of enclosed arc lamps in use June 30, 1905,

Number of single open arc lamps in use (not including enclosed arcs), June 30, 1905,

Number of double open arc lamps in use June 30, 1905,

Number of carbons used during the year,

GENERAL INFORMATION — Electric Light, continued.

EDISON UNDERGROUND SYSTEM.

Feeder tubes, — length of each size in feet, viz.:

SIZES	TOTAL LENGTH INSTALLED JUNE 30, 1904	TAKEN UP SINCE	ADDED SINCE	TOTAL LENGTH INSTALLED JUNE 30, 1905
No. 67 .				
No. 90 .				
No. 168 .				
No. 206 .				
No. 250 .				
No. 300 .				
No. 350 .				
No. 400 .				
No. 450 .				
No. 500 .				
No. 550 .				
No. 600 .				
No. 650 .				
No. 750 .				
No. 1,000 .				
Totals . .				

Main tubes, — length of each size in feet, viz.:

SIZES	TOTAL LENGTH INSTALLED JUNE 30, 1904	TAKEN UP SINCE	ADDED SINCE	TOTAL LENGTH INSTALLED JUNE 30, 1905
No. 27 . .				
No. 41 . .				
No. 48 . .				
No. 56 . .				
No. 80 . .				
No. 100 . .				
No. 105 . .				
No. 120 . .				
No. 150 . .				
No. 168 . .				
No. 180 . .				
No. 200 . .				
No. 206 . .				
No. 250 . .				
No. 300 . .				
No. 350 . .				
No. 400 . .				
No. 450 . .				
No. 500 . .				
Totals . .				

Junction boxes, — Number of each size installed June 30, 1905,
 4 tube, 6 tube, 10 tube, tube,

GENERAL INFORMATION — Electric Light, continued.

Capacity of meters and number of each size in use, viz.:

CAPACITY OF EACH IN 16 C. P. LAMPS	NUMBER IN USE JUNE 30, 1904	REMOVED SINCE	ADDED SINCE	NUMBER IN USE JUNE 30, 1905
3				
5				
10				
15				
20				
25				
30				
40				
50				
60				
75				
80				
100				
120				
150				
160				
200				
240				
300				
320				
450				
480				
600				
640				
Totals				

Number of customers supplied with incandescent lights upon contract system, and number of lamps so supplied,

What minimum monthly charge, if any, is made for service?

Total number of customers using commercial arc lights,

Total number of customers using commercial* incandescent lights,

Total number of customers using only electric power,

Total number of commercial customers using *both* arc and incandescent lights,

Total number of customers using only commercial incandescent lights on arc circuits,

Total number of each size of lamps used at station and office,

How many lamp hours have 2,000 c.p. lamps been run during the year?†

How many lamp hours have 1,200 c.p. lamps been run during the year?†

How many lamp hours have ‡ c.p. lamps been run during the year?†

How many ampere hours have been delivered from station during the year from alternating current dynamos?

* This term to include "domestic" lights or residence lighting.

† Where incandescent lamps are run in series on arc circuits, each *group* installed is to be considered an arc lamp for the purposes of this question.

‡ If arc lamps of other candle powers are used, please insert c.p.

GENERAL INFORMATION — Electric Light, continued.

Number of kilowatt hours delivered at switchboard during the year from alternating current generators?

Number of kilowatt hours delivered at switchboard during the year from direct current arc generators?

Number of kilowatt hours delivered at switchboard during the year from direct current power generators?

Number of kilowatt hours delivered at switchboard during the year from generators of * volts potential?

Total kilowatt hours delivered at switchboard during the year?

Number of kilowatt hours sold during the year from alternating current generators?

Number of kilowatt hours sold during the year from direct current arc generators?

Number of kilowatt hours sold during the year from direct current power generators?

Number of kilowatt hours sold during the year from direct generators of * volts potential?

Total kilowatt hours sold during the year

How many kilowatt hours have been sold for power only?

Maximum alternating current load during the year, and date of same,
Maximum alternating current load on day of least output during the year,
and date of same,

Maximum continuous current load during the year, and date of same,

Maximum continuous current load on day of least output during the year,
and date of same,

Street lamps installed June 30, 1905:

Arcs	No.	c.p.,	amperes,
Incandescents, No.		c.p.,	amperes,

* Please give voltage usually maintained. This question to include all generators not included in the three preceding inquiries.

GENERAL INFORMATION — Electric Light, continued.

Average daily number of same lighted in each month:

MONTH	ARC	INCANDESCENT	MONTH	ARC	INCANDESCENT	MONTH	ARC	INCANDESCENT
July, Aug., Sept., Oct.,			Nov., Dec., Jan., Feb.,			March, April, May, June,		

Number of days in each month that street circuits were lighted:

MONTH	No. of DAYS	MONTH	No. of DAYS	MONTH	No. of DAYS	MONTH	No. of DAYS
July, Aug., Sept.,		Oct., Nov., Dec.,		Jan., Feb., March,		April, May, June,	

Total number of hours street lights were run in each month:

MONTH	HOURS	MONTH	HOURS	MONTH	HOURS	MONTH	HOURS
July, Aug., Sept.,		Oct., Nov., Dec.,		Jan., Feb., March,		April, May, June,	

Schedule of prices for public arc lights,

GENERAL INFORMATION — Electric Light, continued.

Schedule of prices for public incandescent lights,

Number of each size of public incandescent lamps renewed during the year,

Schedule of prices for commercial arc lights,

Schedule of prices for commercial incandescent lights,

Schedule of prices for electric power,

Is any meter rent charged? What is the rule governing such charge?

What changes have been made during the year in prices for lights or power,
and when made?

What kinds of electric motors are used, and for what kinds of work are they
employed?

Is current furnished for light during the daytime?

Is current furnished for operating street cars?

Is current furnished for other power during the daytime?

GENERAL INFORMATION — Electric Light, continued.**STATEMENT OF EACH KIND OF COAL (OF 2,240 LBS. PER TON) OR OTHER FUEL
AT STATION FOR YEAR ENDING JUNE 30, 1905.**

KIND OF FUEL	ON HAND JUNE 30, 1904	RECEIVED DURING THE YEAR	USED DURING THE YEAR	UN- ACCOUNTED FOR	ON HAND JUNE 30, 1905	AVERAGE COST PER TON OF EACH KIND USED AT THE WORKS
	Tons	Tons	Tons	Tons	Tons	

Does the company wire buildings? If so, on what terms?

On what terms does the company furnish incandescent lamps and renewals
of the same?

Average number of men employed, viz.:

NUMBER OF MEN	HOW EMPLOYED

GENERAL INFORMATION — Electric Light, continued.

What additions, alterations or improvements have been made to or in the property of the company since the last return?

In Gas Works:

In Electric Works:

What experiments or changes in methods of manufacture has the company made since its last return?

In Gas Works:

In Electric Works:

What is the total amount charged to construction during the year for the following purposes?

In Gas Works:

Lands and buildings	.....	\$
Machinery and appliances	.....
Mains	.....
Meters	.....

In Electric Works:

Land and buildings	.....
Steam plant	.....
Electric plant	.....
Lines	.....
Transformers	.....
Meters	.....
Arc lamps	.....

Total	\$
-------	-------	----

NAMES AND RESIDENCE OF OFFICERS.*President,**Vice-President,**Manager,**Superintendent,**Treasurer,**Clerk of the corporation,***NAMES AND RESIDENCE OF DIRECTORS.***President.**Treasurer.*

*Directors.***COMMONWEALTH OF MASSACHUSETTS.**

ss.

190 .

Then personally appeared

and severally made oath to the truth of the foregoing statement by them
subscribed according to their best knowledge and belief.

Justice of the Peace.

EXTRACTS FROM CHAPTER 121 OF THE REVISED LAWS.

SECTION 5. Said board shall have the general supervision of all corporations and companies which are engaged in the manufacture and sale of gas or electricity for light or heat, and shall make all necessary examinations and inquiries and keep themselves informed as to the compliance of the several corporations and companies with the provisions of law.

SECTION 29. Corporations and companies which are engaged in the manufacture and sale of gas or electricity for light or heat shall keep their books and accounts in a form to be prescribed by the board of gas and electric light commissioners, and the accounts shall be closed annually on the thirtieth day of June, so that a balance sheet of that date can be taken therefrom. Manufacturing companies in which the manufacture of gas is a minor portion of their business shall be required to keep accounts of the expenses and income of their gas business only.

SECTION 30. Persons or corporations engaged in the manufacture or sale of gas or electric light shall keep such records of their work at their manufacturing station, and in respect to their distributing plant, as the board of gas and electric light commissioners may from time to time require. Said records shall be in such form as the board may prescribe.

SECTION 32. Each such gas or electric light corporation or company neglecting to make the annual return required by the preceding section shall, for the first fifteen days or portion thereof during which such neglect continues, forfeit five dollars a day; for the second fifteen days or any portion thereof, ten dollars a day; and for each day thereafter not more than fifteen dollars a day. If any company unreasonably refuses or neglects to make such return, it shall, in addition thereto, forfeit not more than five hundred dollars for each offence. All forfeitures recovered under the provisions of this section shall be paid into the treasury of the commonwealth and applied to the payment of the expenses of the board.

SECTION 41. In the construction of sections four, five, six, seven, eight, twenty-eight, twenty-nine, thirty-one, thirty-three and thirty-four of this chapter, the terms "gas company" and "corporation" shall include all persons owning or operating works for the manufacture and sale of gas for heating or illuminating purposes within the commonwealth, and the terms "company" and "companies" shall include all corporations or individuals engaged in the manufacture and sale of electric light within the commonwealth.

FROM CHAPTER 406 OF THE ACTS OF 1903.

SECTION 1. Corporations and companies engaged in the manufacture and sale of gas or electricity for light or heat shall annually, on or before the second Wednesday of September, make to said board, in a form prescribed by it, a return for the year ending on the thirtieth day of June preceding, signed and sworn to by its president and treasurer and a majority of the directors, of the amount of its authorized capital, its indebtedness and financial condition, on the said thirtieth day of June preceding, its income and expenses during the preceding year, its dividends paid out and declared, a list of the names of all its salaried officers, and the amount of the annual salary paid to each, and the balance sheet of its accounts as of said preceding thirtieth day of June. Every such corporation and company shall at all times, upon request, furnish any information required by the board relative to its condition, management and operation, and shall comply with all lawful orders of said board.

PART V.

ELECTRIC LIGHT WORKS.

In the form of application book referred to under Part III, by the substitution of the word "electricity" in lieu of "water," and the words "conduits, poles, and wires," in lieu of "pipes," this book is adaptable for electric light works. If, however, further details are desired, the number of arcs, nights per week, hours of burning, candle power, horse-power of motors and fans, period of contract, rate, etc., can be incorporated.

In lieu of "service card" and "plumber's card" referred to under Part III, substitute an "electrician's card," which will show the service number, name of customer, location, size, kind and length of wire, number and kind of poles, cross arms, conduits; number and kind of lights, candle power, and horse-power of motors, etc.

The same general forms of collector's report and treasurer's statement referred to under Part III are applicable, by inserting columns for electricity subdivided into columns for meters, power, advertising, etc.; and rent subdivided into columns for meters, fixtures, and motors, together with column for house wiring.

BILLS.

The same form of bills (Form D) referred to under Part III can be used by the substitution of the word "electricity" for "water"; also bill to have printed thereon, "meter reading, K. W.," "last reading, K. W.," "difference, K. W.," "rate and amount due."

In case electric light company charges for house wiring, or rents or sells fixtures to its customers, these items should also be printed on the bill to save unnecessary clerical labor, or else printed on bills of different color.

In the form of meter book (Form J) under Part III, substitute "K. W." for "Cu. Ft."; and for the On and Off book (Form K), in lieu of column "Fixtures," substitute column "Meter" subdivided into "On when" and "Off when."

NOTE.—For Customer's Registers, see Part IX.

CASH BOOK, JOURNAL, AND LEDGER,

These three books can be combined in one volume or binding for a small company, allotting one half of the pages to cash, one eighth to journal, and three eighths to ledger. For the credit side of cash book a short leaf should be inserted, owing to the large number of accounts thereon.

The same general forms (M and N) are recommended, with ledger headings as follows:

For debit side:

ELECTRICITY					
COMM'L ARCS CONTRACT	COMM'L INC. CONTRACT	METERS	PUBLIC LIGHTS		POWER
			ARC.	INC.	
					ADVERTISING

RENT		
METERS	FIXTURES	MOTORS

OTHER LEDGER HEADINGS				
HOUSE WIRING	EXPENSE			

For credit side:

GENERAL EXPENSES			
RENT	INSURANCE	LEGAL	MISCELLANEOUS

MANUFACTURING EXPENSES							
FUEL	OIL AND WASTE	WATER	RENTALS REAL ESTATE AND POWER	WAGES AT STATION	REPAIRS AND RENEWALS		
					STATION	STEAM PLANT	MISCELLANEOUS
						ELECTRIC PLANT	WATER POWER PLANT

REPAIRS, RENEWALS, AND MAINTENANCE			
LINES, METERS, AND MOTORS	LAMPS	CARBONS	MISCELLANEOUS
		GLOBES	

SALARIES AND WAGES		TAXES	INTEREST AND DISCOUNT
AT OFFICE	GENERAL		

CONSTRUCTION				OTHER LEDGER ACCOUNTS
REAL ESTATE	APPARATUS AND MACH'Y	LINES	METERS	
			MISCELLANEOUS	

The total of all the columns, excepting only "Other Ledger Accounts" column, can be summarized at any period and posted by one entry direct to the ledger, thereby avoiding a great deal of unnecessary posting.

The "Other Ledger Accounts" column is intended for any personal or impersonal account with which it is desired to open an account in the ledger, and requires separate posting for every item in this column.

If payments are made by voucher check, columns can be inserted for voucher number and total of voucher, the latter balancing the distribution of the check.

For a large plant it would be advisable to open an accounts payable or distribution book and make distribution under the suggested headings for all disbursements, opening account with said book in the main ledger by the controlling method. (See Controlling Method and Accounts Payable, or Distribution Book under Part III.)

The accounts should also have some designating number or letter when so arranged, which would materially assist in the posting, entering, and classification.

CLASSIFICATION OF REVENUE, OPERATION, AND MAINTENANCE, FIXED CHARGES AND CONSTRUCTION.

REVENUE OR INCOME.

- (A) *Electricity.*
- (B) *Rent.*
- (C) *House Wiring.*

Account (A).

To include all receipts from commercial arc lights and commercial incandescent lights by contract, for metered electricity, public arc lights, public incandescent lights, electricity furnished for power, advertising, or any other purposes.

Account (B).

To include all receipts for rental of meters, fixtures, motors, etc.

Account (C).

To include the receipts from house wiring.

EXPENDITURES FOR OPERATION, MAINTENANCE, AND MANUFACTURING.

(D) *General Expenses.*

(E) *Manufacturing Expenses.*

(F) *Repairs, Renewals, and Maintenance.*

(G) *Salaries and Wages.*

Account (D).

To include all charges for rent and care of offices; insurance of real estate and other property against fire; steam boiler, accident, and liability insurance; legal expenses, including therein damages to persons or property; office supplies, such as account books, printing, stationery, postage, repairs, and renewals of office furniture, etc.

Account (E).

To include all charges for fuel; rentals for real estate or water power at works; oil and waste; water; salaries and wages at station, including superintendence; repairs, renewals, and maintenance of works, steam plant, electric plant, water power plant, canals, dams, tail-races, etc.

Account (F).

To include all charges for repairs, renewals, and maintenance of poles, lines, meters, motors, lamps, carbons, globes, etc., *excluding* only repairs, renewals, and maintenance of power station.

Account (G).

To include the salaries and wages of meter readers, collectors, office and executive force, *excluding* salaries and wages at power station.

FIXED CHARGES.

(H) *Interest and Discount.*

(I) *Taxes.*

Account (H).

To include interest on bonds and other interest-bearing securities; also interest and discount on notes and open accounts, excepting only interest and discount on construction items.*

* See note under Water Works Classification.

Account (I).

To include all taxes of whatever nature assessed against the property.*

CONSTRUCTION.

(J) *Real Estate.*

(K) *Apparatus and Machinery.*

(L) *Lines.*

(M) *Meters.*

(N) *Miscellaneous.*

Account (J).

To include the cost of all land, buildings, shanties, wharves, etc., of whatever nature, with their necessary equipment, such as elevators, piers, etc., with any additions or improvements thereof.

Account (K).

To include the cost of installation of all machinery and manufacturing appliances, such as water-power plant, including therein dams, canals, penstocks, tail-races, etc.; steam plant,—engines, boilers, heaters, condensers, etc.; electric plant,—dynamoes, switchboards, generators, transformers, regulators, etc., in station.

Account (L).

To include the cost of installation of all street and service lines, overhead and underground, including poles, wiring, cross arms, conduits, cables, manholes, etc.

Account (M).

To include the cost of all meters and meter appliances, together with freight and cartage thereon, and all labor and superintendence in connecting same with the system.

Account (N).

To include the cost of all office furniture and fixtures and any other extensions or additions to the property not otherwise enumerated.

* See note under Water Works Classification.

AUXILIARY BOOKS.

(A) Construction Record Book.

(Forms P and P-1)

LOCATION				POLES				
Street	From	To	No.	Kind	Length	Diameter	Weight	Dis. Apart
WIRES			CROSS ARMS			GUYS		
Kind	Size	Length, Feet						
SPAN WIRES			UNDERGROUND CONDUITS					
Kind	Size	Length, Feet	Method of Construction	Length, Feet	WIRES			
					Kind	Size	Length, Feet	
MANHOLES			ARC LAMPS			INCANDESCENT LAMPS		
Kind	Depth	• Diameter	No.	Single	Double	No.	Single	Double
TRANSFORMERS			SUB-STATIONS			MOTORS		
						No.	On Arc Circuits	On Inc. Circuits
						Power Circuits		
PUBLIC LAMPS								
No.	Nominal C. P.		No. Hours per Night			No. Nights per Month		

(B) Equipment Book, Power Station.

DYNAMOS					ENGINES				
No.	Kind	H. P.	Capacity No. Lamps	C. P.	No.	Kind	H. P.	Maker	

FLY-WHEELS				BELTING			
No.	Kind	Dimensions	Maker	Kind	Width, Feet	Length, Feet	

BOILERS					GENERATORS				
No.	Kind	H. P.	No. of Tubes	Kind of Setting	Maker	No.	Kind	H. P.	Maker

LIGHTNING ARRESTERS		STORAGE BATTERIES		SWITCHBOARDS		VOLT METERS	
No.	Kind	No.	Kind	No.	Kind	No.	Kind

CIRCUIT BREAKERS			REMARKS	
No.	Kind	Size		

(C) Station Record.

This book is made up in a columnar manner, with columns for date, hours running, condensing, non-condensing, tons of coal used, maximum horse-power lamps burning, average horse-power lamps burning, direct current output, alternating current output, total current output, and column for remarks.

(D) Real Estate Book.

LAND		BUILDINGS			REMARKS
Location	No. Feet	Location	Character	Dimensions	
RIGHTS OF WAY					
Location		Description			No. Feet

For a small plant, the record books, viz., construction record book, equipment book, power station and real estate book, can be incorporated in one book, allotting the greater part of the pages to poles, wires, underground conduits, manholes, arc lamps, incandescent lamps, transformers, sub-stations, motors, and public lamps, as these records are active, due to the extensions of the system, while the other records are more of a fixed character.

If further information is desired as to the character of the fixed structures, such as power station and other buildings, apparatus and machinery, a dozen or so blank pages could be incorporated in the book, whereon sketches or diagrams could be made, showing the construction and memoranda of the details thereof entered from the original specifications or contracts for building the same, thus having immediate access to this data when occasion requires, obviating the necessity of hunting up the contract or data which may have been misplaced or lost in the office files.

NOTE. — See form of report required by gas and electric light commissioners of Massachusetts at the end of Part IV.

PART VI.

STEAM HEATING WORKS.

By a few minor changes in the wordings and headings of application book, service card, collector's report, treasurer's statement, and on and off books referred to under Part III, these can be used for steam heating works.

In lieu of plumber's card (Form C), Part III, substitute a "steam fitter's card," showing about the same details as to fixtures used in this class of business; also the number of feet of floor surface, the ratings as a rule in steam heating companies being made upon this basis.

The same general form of bills (Form D) can be used by the substitution of the phrase "Steam heat for feet of floor surface."

In case company sells or rents fixtures, these should also be printed on the bill to economize in clerical labor.

Should steam heating company be owned and operated jointly with an electric company, it would be advisable to have bills for steam heat rendered on paper of different color, in order to avoid confusion and expedite posting.

NOTE.—For Customer's Registers, see Part IX.

CASH BOOK, JOURNAL, AND LEDGER.

The same general forms (M and N) referred to under Part III are recommended, with a change of ledger headings, viz.:

For debit side:

STEAM HEAT	SERVICE PIPES AND FITTINGS	EXPENSE			OTHER LEDGER ACCOUNTS
------------	----------------------------------	---------	--	--	--------------------------

For credit side:

EXPENSES				SALARIES AND WAGES			
Office	Works	General		Office	Works	General	
REPAIRS AND RENEWALS							
Distribution Pipes	Service Pipes and Fittings	Works	Miscellaneous	INTEREST AND DISCOUNT	TAXES	FUEL	
CONSTRUCTION							
Distribution Pipes	Service Pipes and Fittings	Manholes	At Works	OTHER LEDGER ACCOUNTS			
				Miscellaneous			

CLASSIFICATION OF REVENUE, OPERATION AND MAINTENANCE, FIXED CHARGES, AND CONSTRUCTION.

REVENUE OR INCOME.

(A) *Steam Heat.*

(B) *Service Pipes and Fittings.*

Account (A).

To include all receipts from the sale of steam heat for purposes of every kind.

Account (B).

To include all receipts from the sale of service pipe and fittings and for any labor in laying and connecting same with the distribution system, which is chargeable to customers.

EXPENDITURES FOR OPERATION AND MAINTENANCE.*

(C) *Expense.*

(D) *Salaries and Wages.*

(E) *Repairs and Renewals.*

(F) *Fuel.*

Account (C).

To include all charges for rent and care of office; insurance of real estate and other property against fire; steam boiler, accident, and liability insurance; legal expenses; office supplies, such as account books, printing, stationery, postage, renewals of office furniture, etc.; oil, waste, packing, etc., for use at works, with freight and cartage thereon.

Account (D).

To include all wages of engineers, firemen and assistants; salaries of office force, superintendent of works and executive officers.

Account (E).

To include all charges for repairs and renewals of machinery at works; distribution mains and appliances; manholes, service piping and fittings, etc.

* If it is desired to show cost of producing steam, exclusive of its distribution, the accounts should be arranged in the manner suggested for Gas Works.

Account (F).

To include all charges for coal, wood, or other fuel, including the handling of same and freight and cartage to the works.

FIXED CHARGES.

(G) *Interest and Discount.*

(H) *Taxes.*

Account (G).

To include interest on bonds and other interest-bearing securities, also interest and discount on notes and open accounts, excepting interest and discount on construction items.*

Account (H).

To include all taxes of whatever nature assessed against the property.*

CONSTRUCTION.

(I) *Distribution Pipes.*

(J) *Service Pipes and Fittings.*

(K) *Manholes.*

(L) *At Works.*

(M) *Miscellaneous.*

Account (I).

To include the cost of all distribution pipes, gates, special castings, lead, packing, fuel (for melting lead), with freight and cartage thereon to the point of use; trenching, backfilling, paving, and all labor in extending the distribution system, together with the cost of supervision.

Account (J).

To include the cost of all new service pipes and fittings, with freight and cartage thereon, and labor in laying and connecting services with the system, not otherwise charged to customers.

* See note under Water Works Classification.

Account (K).

To include the cost of all brick, cement, and stone manholes, manhole covers, with all freight and cartage thereon to point of use, together with the labor cost of building same and for any supervision thereof.

Account (L).

To include the cost of installation of all machinery and appurtenances used at the works, together with the cost of any additions or improvements thereof.

Account (M).

To include the cost of all other additions to or extensions of the plant not otherwise enumerated under construction.

AUXILIARY BOOKS.

Under the head of Auxiliary Books referred to under Parts III and IV, the construction record book (Forms P and P-1) and gate book (Form P-2) are the most important for steam heating works.

The construction record book will show size, kind, length, and location of all pipes, valves, valve boxes, manholes, etc., which are generally buried underground, and details and sketches of other structures, such as stations, sub-stations, regulators, engines, boilers, etc.

The gate book will show the location of manholes, gates, etc., by streets.

For a small plant the construction record book, station equipment book, and real estate book can be incorporated in one book, allotting the greater part of the pages to pipes, valves, manholes, etc., as these are active, due to the extensions of the system, while the other records are more of a fixed character.

If further information is desired as to the character of the fixed structures, such as stations, sub-stations, machinery, etc., a few blank pages could be incorporated in the book, whereon sketches or diagrams showing the construction and memoranda of the details thereof could be entered, culled from the original specifications or contract for building the same, thereby having immediate access to this data when occasion requires, avoiding the necessity of hunting up the original data which may have been misplaced or lost in the files.

PART VII.

TELEPHONE COMPANIES.

Applicants for the use of telephone service sign a contract either for limited or unlimited service, guaranteeing a certain minimum amount for the use of same and exchange service.

The limited service form of contract allows a maximum number of calls at a stated figure; and for all calls in excess of the maximum there is a stipulated charge for each call, the cost of the service being based on the number of calls desired and whether on a separate line or in combination with others using the same line, there being no charge under ordinary circumstances for the installation.

The unlimited service allows the subscriber an indefinite number of calls at a stated figure.

ELECTRICIAN'S CARD.

When the instruments are installed, the electrician makes a return on an "electrician's card," showing the drop number, name of subscriber, location, size, kind and length of wire, number and kind of poles, cross arms, etc., together with the details of the inside installation, such as number and kind of telephone, extension bells, extension sets, booths, etc., after which all data deemed necessary is transferred to the customer's register hereinafter mentioned and card filed.

OPERATOR'S SHEETS.

Each operator is supplied with a daily tally sheet, on which she records all calls inside circuit chargeable to each subscriber in her section, which is turned over to the accounting department daily. A summation of the calls chargeable to each subscriber is made monthly, and when same are in excess of the contract limitations, the subscriber is charged therefor at the stipulated rate.

She is also supplied with printed sheets or cards, showing thereon drop number, subscriber, exchange called, party calling, by whom called, time, assignment, exchange calling, messengers, etc., on which she records all long distance calls, either on or from the subscribers in her section. These are also forwarded to the accounting department daily, which incorporates same with the details thereof in the regular bill for service rendered each subscriber at the end of the month or quarter.

By the filling in of the columns "Exchange Called" and "Exchange Calling" by the operators at each end of the line, it not only serves as a check or verification of the long distance calls for the company's information, but is also available should any subscriber question the charges on his bill therefor.

BILLING AND COLLECTIONS.

The form of bills can be made with or without stub attachments, depending on the method of accounting in use.

(Form of Bill.) (D-1.)

_____190

M_____

TO NORTHERN TELEPHONE COMPANY, DR.

To Rental per Contract, for Quarter ending_____	\$	
or		
from_____ to_____		
To Calls in excess of contract		
To Long Distance Calls (per itemized statement on back, or attached)		
To Miscellaneous (giving details)		
Total	\$	

Received payment for Company,

of check or cash received; and when same has been transmitted to the treasurer or other officer, the collector receives a receipt therefor, made detachable from the report by a perforated line.

The form of collector's report can be drawn up to show the details of collections, if desired, such as rentals, tolls, excess tolls, foreign tolls, messengers, etc., and column for total. (See Form G, Part III.)

IN AND OUT BOOK.

This book is arranged in a columnar manner (Form L), with columns for drop number, subscriber, location, date connected, date disconnected, and contract classification, subdivided into columns for telephone, extension bells, extension sets, booths, miscellaneous, and column for remarks. Abstracts of the daily changes should be sent to the bookkeepers.

For a large company it would be advisable to have separate books, one for the "In" and one for the "Out" subscribers. If desired, columns can be inserted showing the date of contract and date of its expiration.

NOTE.—For Customer's Registers, see Part IX.

CASH BOOK, JOURNAL, AND LEDGER.

(Forms M and N.)
For debit side:

RENTALS	TOLLS	EXCESS CALLS	MISCELLANEOUS	EXPENSE	OTHER LEDGER ACCOUNTS

For credit side:

EXPENSE			SALARIES AND WAGES		
Office	General	Miscellaneous	Operators	Exchange Men	Office
					General

REPAIRS, RENEWALS, AND MAINTENANCE					Miscellaneous
Instruments	Poles and Wires	Exchanges	Manholes and Conduits		

FUEL	INTEREST AND DISCOUNT	TAXES	LEASED LINES

CONSTRUCTION				OTHER LEDGER ACCOUNTS
Instruments	Extensions	Tools	Exchanges	Miscellaneous

For a large company it would be advisable to install the controlling method as suggested under Part III.

CLASSIFICATION OF REVENUE, OPERATION AND MAINTENANCE, FIXED CHARGES AND CONSTRUCTION.

REVENUE OR INCOME.

- (A) *Rentals.*
- (B) *Tolls.*
- (C) *Excess Calls.*
- (D) *Miscellaneous.*

Account (A).

To include the receipts from all rentals, either for the use of circuit or long distance lines.

Account (B).

To include the receipts for all tolls for telephoning outside the circuit, either on the company's or other lines.

Account (C).

To include the receipts for all calls in excess of the contract limitation.

Account (D).

To include receipts from all sources not otherwise enumerated.

EXPENDITURES FOR OPERATION AND MAINTENANCE.

- (E) *Expense.*
- (F) *Salaries and Wages.*
- (G) *Repairs, Renewals, and Maintenance.*
- (H) *Fuel.*

Account (E).

To include all charges for rent and care of offices; insurance of real estate and other property against fire; steam boiler, accident and liability insurance; legal expenses, including therein damages to persons or property; office supplies, such as account books, printing, stationery, postage, renewals of office furniture, etc.

Account (F).

To include the salaries of all operators, collectors, general office force, and executive officers.

Account (G).

To include all charges for repairs, renewals, and maintenance of instruments; poles and wires; exchanges; manholes and conduits; real estate and buildings and their appurtenances, together with the cost of all supplies necessary therefor, including freight and cartage thereon to point of use.

Account (H).

To include all charges for coal, wood, or other fuel, including the handling of same and freight and cartage thereon.

FIXED CHARGES.

(I) *Interest and Discount.*

(J) *Taxes.*

(J-1) *Leased Lines.*

Account (I).

To include interest on bonds and other interest-bearing securities; also interest and discount on notes and open accounts, excluding interest and discount on notes, the proceeds of which are applied to construction items.*

Account (J).

To include all taxes and licenses of whatever nature assessed against the property.*

Account (J-1).

To include all charges for rental of leased lines and exchanges.

CONSTRUCTION.

(K) *Instruments.*

(L) *Extensions.*

(M) *Tools.*

(N) *Exchanges.*

(O) *Manholes and Conduits.*

(P) *Miscellaneous.*

* See note under Water Works Classification.

Account (K).

To include the cost of all instruments of whatever nature, telephones, switchboards, etc., with freight and cartage thereon, and cost of labor in installation, including supervision.

Account (L).

To include the cost of all poles, wires, cross arms, guys, span wires, etc., with freight and cartage thereon, to point of use, together with the cost of all labor in erecting same, including supervision.

Account (M).

To include the cost of all tools and such appliances, with freight and cartage thereon.

Account (N).

To include the cost of all buildings used as exchanges and any improvements thereof, including the equipment therein, such as wiring, switchboards, telephones, office furniture, etc.

Account (O).

To include the cost of all manholes and conduits, together with the cables laid therein, with freight and cartage on the supplies necessary therefor to point of use; also to include all labor in constructing and supervision thereof.

Account (P).

To include the cost of all other construction not previously enumerated.

AUXILIARY BOOKS.

(A) Construction Record Book.

(Forms P and P-1)

LOCATION				POLES				
Street	From	To	No.	Kind	Length	Diameter	Weight	Dis. Apart

WIRES			CROSS ARMS			GUYS		
Kind	Size	Length, Feet				Kind	Size	Lgth. Ft.

SPAN WIRES			UNDERGROUND CONDUITS				
Kind	Size	Length, Feet	Method of Construction	Length	Kind	Size	Length, Feet

MANHOLES			CABLES		
Kind	Depth	Diameter	No. of Wires	Size of Wire outside Diam.	Weight per 1,000 Feet

CIRCUITS					SWITCHBOARDS			
LOCATION		WIRES						
From	To	Kind	Length	Insulation	Kind	Drops per Section	Number Sections	

In large companies the Construction Record Book can be subdivided into districts, and each district manager furnished with the construction records pertaining to his division, so that he will have at hand all the details pertaining thereto in an emergency.

Separate pages of the Construction Record Book should be allotted to the long-distance lines.

(B) Equipment Book, Power Station.

DYNAMOS				ENGINES			
No.	Kind	H. P.	Maker	No.	Kind	H. P.	Maker

FLY-WHEELS				BELTING		
No.	Kind	Dimensions	Maker	Length, Feet	Kind	

BOILERS					LIGHTNING ARRESTERS		
No.	Kind	H. P.	No. of Tubes	Setting	Maker	No.	Kind

SWITCHES			STORAGE BATTERIES			CIRCUIT BREAKERS		
No.	Kind	No.	No.	Kind	No.	Kind	Kind	Size

(C) Real Estate Book.

LAND		BUILDINGS OR EXCHANGES			
Location	No. Feet	Location	Character	Dimensions	Method Construction

RIGHTS OF WAY		
Location	Description	No. Feet

For a small plant, the record books, viz., Construction Record, Equipment Book, Power Station and Real Estate Book, could be incorporated in one book, allowing the greater part of the pages to poles, wires, underground conduits, manholes, cables, circuits, switchboards, etc., and long-distance lines, as these records are more active, due to the extensions of the system, while the other records are of a fixed character.

If further information as to the character of the fixed structures is desired, such as apparatus and machinery, exchanges, etc., a few blank pages could be incorporated in the book, whereon sketches or diagrams could be made showing the construction, and memoranda of the details thereof could be entered, culled from the original specifications or contract for building the same, thus having immediate access to this data when occasion requires and avoiding the necessity of hunting up the original papers which may have been lost or misplaced in the office files.

PART VIII.

ELECTRIC RAILWAYS.

The business of an electric railway compared with that of other quasi-public corporations is mainly on a cash basis, and does not require the numerous books of such corporations pertaining to the finances.

The ordinary system is generally divided into departments, each department having a receiver to whom the conductors turn in their reports and settlements daily, and in some cases after each trip. The receiver turns over these reports and settlements daily to the collector from the main office, where same are audited.

The starter takes note of the number on the car registers at the beginning and end of each trip; and always at the beginning and end of each day's work. These are also forwarded to the main office daily and serve as a verification or check on the conductor's reports.

CONDUCTOR'S REPORTS.

The usual form of conductor's report has printed thereon route, date, car number, name of conductor, number of conductor, number of motorman; cash fares, number and amount; ticket fares, number and amount; totals; and on the back of same, time out, time in, hours and minutes of service claimed, trip number, number on registers at the beginning of each trip, ditto at end of each trip, number of cash passengers, number of ticket passengers, etc.

INTER-URBAN STREET RAILWAYS.

There are many plans and methods adopted for collections on inter-urban street railways, but the two most simple and effective plans are termed the "Zone Plan" and "Duplex Plan."

The Zone plan makes the rate of fare between points five cents, at each point of which the conductor is obliged to make a collection of five cents, or its equivalent in tickets, ringing each collection on its respective register.

The Duplex plan consists of two tickets or slips being punched through by the conductor, one half of the ticket going to the passenger and the other half held by the conductor, to be turned in by him with his collections, which serves as a check on the amount of money due from him.

FREIGHT AND EXPRESS.

Freight and express traffic as a rule is generally small in comparison with the passenger traffic. The conductor is supplied with sufficient Duplex tag forms, having printed thereon name, address, box, barrel, bag, etc., destination from to, amount paid, which tag should be punched by the conductor in the square or section designated by the freight or express, one half of the tag to be turned in to the receiver with the conductor's report, the other half to be attached to the parcel until delivered, at which time it is detached and signature of the consignee secured thereto, after which it is turned in at the office, filed with receipts and held as proof of delivery.

In case of a large traffic in freight and express, the accounting should be more along the lines of that for steam railways, especially so when freight is run on regular scheduled trains. Fixed tariffs should then be arranged for different commodities, by carload and less than carload lots, and regular waybills made in duplicate, the original being turned over to the conductor, who in turn hands same over to the receiving agent, each making proper records to show the handling of the freight while in his care or possession, the receiver securing a receipt therefor on delivery to the consignee.

The business may also warrant a daily, weekly, or monthly abstract, both by the forwarding and receiving agents, showing the date of shipment, waybill number, commodity, weight, rate, amount paid, and amount to be collected.

The amount to collect on the abstract of the forwarding agent should agree with the amount paid as shown by the receiver's abstract, plus the amount uncollected for undelivered freight.

PAYROLLS.

Payrolls for conductors and motormen of the entire system are made up at the main office from the conductors' reports or from the timekeeper's report of the department. The payrolls for barn, shop, line, and track men are also made up at the main office from the daily report of the foreman or timekeeper, showing the name, occupation, rate per diem, with columns thereon for the distribution of the labor to their proper classifications.

PAYMASTER.

The paymaster is given a voucher or check for the amount of the payrolls of the department to be paid, either the same day or the day previous to the payment, and is charged therewith on the books at the main office. Fixed days are allotted for the payment of each department, and at certain hours and convenient places for the employees thereof. On the return of the payrolls by the paymaster, with proper signatures or receipts for the payments, he is given credit for the amount thereof, plus cash returned for any unclaimed wages.

SUPPLIES.

Supplies for each department are furnished on application through Requisition Forms (Form S), and when same are duly audited, countersigned and sent, the respective department is charged therewith on the books at the main office.

(See Department Order, Requisition Order, and Invoices under Part X, Purchasing Department.)

CASH BOOK, JOURNAL, AND LEDGER.

These books can be combined in one volume or binding for a small company, allotting the first quarter of the book to cash, second quarter to journal, and last half to ledger.

In view of the large number of ledger headings and subdivisions thereof, both for the receipts and disbursements, the best method of handling these accounts is to open what is termed either an

Accounts Receivable Book or Earnings and Income Register, for the receipts, opening an account with said book or register in the main ledger by the controlling method, as explained under Part III, with ledger headings as follows:

Car Earnings				
Passengers	Chartered Freight Cars	Mail	Express	Other Car Earnings
Miscellaneous Earnings				
Advertising	Rent of Land and Buildings	Rent of Tracks	Rent of Equipment	Sale of Power
Miscellaneous Income				
Interest on Deposits	Income from Securities Owned	Rent of Leased Lines	Other Miscellaneous Income	

General.

Salaries of General Officers	Salaries of Clerks	Printing and Stationery	Miscellaneous Office Expenses	Store Expenses	Stable Expenses	Advertising and Attractions
Miscellaneous General Expenses	Damages	Legal Expenses in Connection with Damages	Miscellaneous Legal Expenses	Rent of Land and Buildings	Rent of Tracks and Terminals	Insurance

Fixed Charges.

Interest and Discount	Taxes	Rent of Leased Lines
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Construction and Equipment Accounts.

Organization	Engineering and Superintendence	Rights of Way	Track and Roadway Construction	Electric Line Construction	Real Estate Used in Operation of Road
Building and Fixtures Used in Operation of Road	Investment Real Estate	Power Plant Equipment	Shop Tools and Machinery	Cars	Electric Equipment of Cars
				Miscellaneous Equipment	Interest and Discount
					Miscellaneous

CLASSIFICATION OF REVENUE, OPERATION AND MAINTENANCE, FIXED CHARGES AND CONSTRUCTION.**REVENUE AND INCOME.**

- (A) *Car Earnings.*
- (B) *Miscellaneous Earnings.*
- (C) *Miscellaneous Income.*

Account (A).

To include all earnings from the operation of cars, subdivided into earnings from passengers (whether in cash or tickets), chartered cars, freight, mail, express, and other car earnings.

Account (B).

To include all earnings from the operation of the property (not included under car earnings), subdivided into advertising; rent of land and buildings received from property used in the operation of the road; rent of tracks, to include all receipts for the use of tracks, terminals, bridges, etc.; rent of equipment, to include all rental receipts for cars and other equipment; sale of power, to include all receipts from the sale of power for whatever purpose; other miscellaneous earnings, to include all other earnings not heretofore enumerated.

Account (C).

To include all interest from moneys on deposit; income from securities owned; income from leased lines or terminals, the operation of which has been abandoned by the lessor; and all other income not otherwise enumerated, such as *net* income from real estate purchased as an outside investment; *net* income from the operation of parks or any other outside business conducted by the company.

OPERATION EXPENSES.

- (D) *Maintenance.*
- (E) *Transportation.*
- (F) *General.*

Account (D).

To include all charges for maintenance of way and structures and maintenance of equipment.

Maintenance of Way and Structures subdivided into classes Track and Roadway, Electric Lines, Buildings, and Fixtures.

Maintenance of Equipment subdivided into classes Steam Plant, Electric Plant, Cars, Electric Equipment of Cars, Miscellaneous Equipment, and Shop Expenses.

Charge to "Track and Roadway" all expenditures for repairs and renewals of track and roadway, culverts, subways, track in yards, terminals or other property, including labor, material, tools, freight, hauling, etc., to the point of use, together with all other expenses incident to such work.

Charge to "Electric Line" all expenditures for repairs and renewals of all overhead, underground, or any other electric line on whatever part of the property, including labor, material, tools, etc., used in taking up, resetting, or repainting poles; taking down trolley, feed, or other electric lines and installing new lines; repairing and renewals of conduits for wires; repairing and replacing bond wires; punching and drilling rails for trackwiring; removing and relaying pavements, ballast, etc., when necessary for repairs and renewals on electric lines, together with freight, hauling, and distribution of the material and supplies and all other expenses incident to such work.

Charge to "Buildings and Fixtures" all expenditures for repair and renewals of buildings and fixtures used in the operation of the road, including labor, material, tools, hauling, and all other expenses incident to such work.

Charge to "Steam Plant" all expenditures for repairs and renewals of machinery and fixtures of the steam or water power plant, including labor, material, tools, freight, hauling, and all other expenses incident to such work.

Charge to "Electric Plant" all expenditures for repairs and renewals of the machinery and fixtures of the electric plant, including labor, material, tools, freight, hauling and all other expenses incident to such work.

Charge to "Cars" all expenditures for repairs and renewals of passenger, baggage, express, freight, mail, and other cars from

the operation of which revenue is derived, including labor, material, tools, freight, hauling, and all other expenses incident to such work.

Charge to "Electric Equipment of Cars" all expenditures for repairs and renewals of the electric equipment and wiring of cars, including labor, material, tools, freight, hauling, and all other expenses incident to such work.

Charge to "Miscellaneous Equipment" all expenditures for repairs and renewals of water cars, sprinkling cars, sand cars, salt cars, supply cars, snow plows, sweepers, scrapers, miscellaneous snow equipment, and all other vehicles or wagons not operated for the purpose of revenue, including labor, material, tools, freight, hauling, and all other expenses incident to such work.

Charge to "Shop Expenses" all expenditures for repairs and renewals of shop tools, machinery, and appliances of every nature used on repair work, including labor, tools, fuel, lubricants, waste, together with freight and hauling of same; all wages of the general employees engaged in the repair shop, and all other expenses incident to such work.

Account (E).

To include all charges for the operation of power plant and operation of cars.

Operation of Power Plant subdivided into classes: Power Plant Wages; Fuel for Power; Water for Power; Lubricants and Waste for Power Plant; Miscellaneous Supplies and Expenses for Power Plant; Hired Power.

Operation of Cars subdivided into classes: Superintendence of Transportation; Wages of Conductors; Wages of Motormen; Wages Miscellaneous Car Service Employees; Wages Car House Employees; Car Service Supplies; Miscellaneous Car Service Expenses; Hired Equipment; Cleaning and Sanding Tracks; Removal of Snow and Ice.

Charge to "Power Plant Wages" all expenditure for labor in the power plant, excluding only labor in making repairs or renewals.

Charge to "Fuel for Power" all expenditures for coal, oil, or gas used as fuel, or any other fuel, including freight and handling.

Charge to "Water for Power" all expenditures for water used to produce steam or to operate the power plant.

Charge to "Lubricants and Waste for Power Plant" all expenditures for lubricants, such as oil, grease, waste, rags, etc.

Charge to "Miscellaneous Supplies and Expenses for Power Plant" all expenditures for operation of power plant not heretofore enumerated.

Charge to "Hired Power" all expenditures for power purchased of other parties.

Charge to "Superintendence of Transportation" all wages of superintendents, assistants and aids, road officers, inspectors, and other employees superintending transportation.

Charge to "Wages of Conductors" all wages of conductors engaged in operating cars for revenue purposes.

Charge to "Wages of Motormen" all wages of motormen engaged in operating cars for revenue purposes.

Charge to "Wages of Miscellaneous Car Service Employees" all wages of starters, transfer agents, switch tenders, trolley men, and other car service employees.

Charge to "Wages of Car House Employees" all wages of car house foremen, watchmen, car placers, car switchers, car and motor inspectors, car cleaners, car oilers, and other car house employees not engaged in making repairs or renewals.

Charge to "Car Service Supplies" all expenditures for lubricants and waste for cars, and electric equipment of cars in connection with the lamps, oil, and supplies for lighting cars, water and other supplies for cleaning cars, fuel for heating cars, bell and register cord, trolley rope, and all other material and supplies, excepting only those used for repairs and renewals of cars or electric equipment of cars.

Charge to "Miscellaneous Car Service Expenses" all expenditures for transfers and tickets, conductors' books, punches, portable registers; tools for motormen; employees' badges and uniforms; cost of getting derailed cars on track and removing obstructions and wreckage; miscellaneous expenses of car house, including fuel, light, water (excepting water used in cleaning cars), and all other car service expenses not otherwise provided for.

Charge to "Hired Equipment" all expenditures for rental of cars, electric equipment of cars, and other equipment.

Charge to "Cleaning and Sanding Track" all expenditures for cleaning, greasing, watering, sprinkling, and removing dirt from

track; sanding track, including wages of men engaged in the work; cost of sand, and hauling and distributing same; cost of track brooms and other tools; curve grease and water for sprinkling and watering track, and all other supplies and expenses incident to such work.

Charge to "Removal of Snow and Ice" all expenditures for labor, material, tools, and expenses; cost of salt and delivery of same in the car house; and the wages of men engaged in salting tracks and operating snow plows, sweepers, scrapers, etc.

Account (F).

General, subdivided into classes: Salaries of General Officers; Salaries of Clerks; Printing and Stationery; Miscellaneous Office Expenses; Stores Expense; Stable Expense; Advertising and Attractions; Miscellaneous General Expenses; Damages; Legal Expenses in connection with Damages; Miscellaneous Legal Expenses; Rent of Land and Buildings; Rent of Tracks and Terminals, and Insurance.

Charge to "Salaries of General Officers" all salaries of president, vice-president, secretary, treasurer, auditor, general manager, assistant general manager, chief engineer, general superintendent, purchasing agent, and all other executive and administrative officers whose duties extend over the entire system.

Charge to "Salaries of Clerks" the salaries of bookkeepers, cashiers, receivers, paymasters, stenographers, and all other clerks employed on the entire system not otherwise provided for.

Charge to "Printing and Stationery" all expenditures for printing, stationery, and stationery supplies not otherwise provided for.

Charge to "Miscellaneous Office Expenses" the cost of all office supplies, repairs and renewals of office furniture, wages of janitors, porters, messengers, and all other office expenses not otherwise provided for.

Charge to "Stores Expense" all salaries and expenses in connection with storerooms, including cost of sending material and supplies from general store room to branch store rooms, and the collecting of scrap material.

Charge to "Stable Expense" the cost of feed, keep, and shoeing of horses and all other stable expenses.

Charge to "Advertising and Attractions" the cost of advertising of every description, including printing handbills, posters, etc.; *net* expenses of music, parks, park properties and resorts, etc.

Charge to "Miscellaneous General Expense" all expenses of public telephone system; maintaining and operating private telephones, telegrams, subscriptions and donations; traveling expenses of general officers and others connected with the main office, and contingent expenses connected with the management not otherwise provided for.

Charge to "Damages" all expenses on account of property damage and persons killed or injured; salaries and expenses of claim agents, investigators, adjusters, and others engaged in the investigation of accidents and adjustment of claims; salaries, fees, and expenses of surgeons, doctors, nurses, hospital attendants, medical and surgical supplies, fees and expenses of coroners and undertakers; fees of witnesses and others, excepting only lawyers' fees and court costs and expenses.

Charge to "Legal Expenses in Connection with Damages" all legal expenses incurred in connection with the defense or settlement of damage claims.

Charge to "Miscellaneous Legal Expenses" all legal expenses except those incurred in connection with damages.

Charge to "Rent of Land and Buildings" all rent for lands and buildings used in the operation of the road.

Charge to "Rent of Tracks and Terminals" all rent paid for tracks or terminals of other roads, bridge rentals, and tolls.

Charge to "Insurance" the cost of fire and boiler insurance.

FIXED CHARGES.

(G) *Interest and Discount.*

(H) *Taxes.*

(I) *Rent of Leased Lines.*

Account (G).

Charge to "Interest and Discount" all interest charges on funded debt, real estate mortgages, floating debt, and discount on notes,* excepting interest or discount on notes the proceeds of which are applied to construction items.

* See note under Water Works Classification.

Account (H).

Charge to "Taxes" all taxes on real estate and personal property, track, franchise, upon capital stock, gross earnings; car and other vehicle licenses,* excepting only taxes on property purchased as an investment, foreign to the operation of the road.

Account (I).

Charge to "Rent of Leased Lines" all charges for rent of leased lines and terminals.

CONSTRUCTION.*(J) Construction.**Account (J).*

To include all charges for construction, improvements, and betterment of the property.

Construction subdivided into classes: Organization; Engineering and Superintendence; Right of Way; Track and Roadway Construction; Electric Line Construction; Real Estate Used in Operation of Road; Buildings and Fixtures Used in Operation of Road; Investment Real Estate; Power Plant Equipment; Shop Tools and Machinery; Cars; Electric Equipment of Cars; Miscellaneous Equipment; Interest and Discount; Miscellaneous.

Charge to "Organization" all expenses incurred in effecting organization, including therein legal expenses.

Charge to "Engineering and Superintendence" all expenditures for surveys by engineers, transitmen, and superintendence on preliminary and construction work, and all expenses incident to such work.

Charge to "Right of Way" all expenses incurred in securing right of way and payments therefor, including the cost of the necessary real estate.

Charge to "Track and Roadway Construction" all expenditures for track and roadway construction, including superintendence, labor, material, tools, freight, hauling and distribution of material, and all other expenses incident to such work, together with the

* See note under Water Works Classification.

cost of excavating, grading, tracklaying, ties, yokes, rails, man-hole frames and covers, ballasting, pavement, bridges, trestles, culverts, tunnels, etc.

Charge to "Electric Line Construction" all expenditures for overhead, underground, or other electric line construction, including superintendence, labor, material, tools, freight, hauling and distribution of the material, and all other expenses incident to such work; cost of punching and drilling rails for track wiring, rail bonds, poles, labor, and material for setting and painting poles; feed, guard, span, trolley, and other wires; feeders and all other appurtenances and fixtures necessary therefor, together with cost of all labor in erecting same; conduits and conduit wires for underground construction, including conductors, insulators, sewer connections, etc.

Charge to "Real Estate Used in Operation of Road" all expenditures for real estate used in operation of road, except real estate used for right of way.

Charge to "Buildings and Fixtures Used in Operation of Road" all expenditures for buildings and fixtures used in operation of road, including superintendence, labor, material, tools, freight, hauling and distribution of material, and all other expenses incident to such work.

Charge to "Investment Real Estate" all expenditures for land and buildings not used in operation of road.

Charge to "Power Plant Equipment" all expenditures for steam and electric equipment of power plant, including foundations and installation.

Charge to "Shop Tools and Machinery" all expenditures for shop tools and machinery for general repair shops, car houses, etc., including foundations and installations.

Charge to "Cars" all expenditures for passenger, baggage, express, freight, mail and other cars from the operation of which revenue is derived.

Charge to "Electric Equipment of Cars" all expenditures for electric equipment and work of all cars, whether revenue or work cars, including labor, material, tools, freight, hauling of material, and all other expenses incident to such work.

Charge to "Miscellaneous Equipment" all expenditures for water cars, sprinkling cars, sand cars, salt cars, supply and other

works cars, snow plows, sweepers, scrapers, and miscellaneous snow equipment; horses, wagons, vehicles, tools and appliances necessary in the use of work cars or snow equipment.

Charge to "Interest and Discount" all interest paid or received in connection with construction funds; and all discount or premiums resulting from the sale of securities for construction should be charged or credited as the case appears to this account.

Charge to "Miscellaneous" all expenditures for printing and stationery, office supplies and expenses, damage claims, wages of clerks and all other expenses incident to construction not otherwise provided for.

(Form Z) INCOME ACCOUNT FOR YEAR ENDING.....190 .

Gross earnings from operation (per statement attached), \$.....

Operating expenses (" " " "),
_____*Net earnings from operation,* \$.....

Miscellaneous Income:

Interest on deposits, \$.....

Income from securities owned,

Rent of leased lines,

Other miscellaneous income,
_____\$.....
_____*Gross income, less operating expenses,* \$.....

FIXED CHARGES:

Taxes, —

On real and personal property, \$.....

On capital stock,

On earnings,

Miscellaneous,

\$.....

Interest, —

On bonded debt, \$.....

On real estate mortgages,

On floating debt,

Rent of leased lines,

Other deductions,
_____\$.....
_____*Net income for year,* \$.....

AUXILIARY BOOKS.

(A) Construction Record Book.

(Forms P and P-I)

LOCATION				POLES				COPPER WIRES	
Street	From	To	No.	Kind	Length	Diameter	Distances Apart	Size	Length, Feet
CROSS ARMS		GUYS		SPAN WIRES				FEEDERS	
	Kind	Size	Length, Feet	Diameter	Length, Feet	Diameter	Length, Feet	Insulation	
RAILS				SPIKES				TIES	
Weight	Size	Length	Feet	Size	Weight	Kind	Size	Weight	
BALLASTING		PAVING				TURNOUTS			
Kind	Size	Kind	Length, Feet	Location	Length, Feet	Location	Length, Feet		
SIGNAL SWITCHES		RAILWAY CROSSINGS							
		Location	No. Feet	Weight of Rail					
BRIDGES AND TRESTLES				PIPE CULVERTS		REMARKS			
Location	Character	Dimensions	Method Construction						

(B) Equipment Book, — Rolling Stock.

DESCRIPTION OF CARS									
No.	Maker	Passenger		Freight		Mail	Work	Snow	Plows
		Box	Open	Box	Platform				
LENGTH		WIDTH		HEIGHT		SEATING CAPACITY			
Body	Over All	Platform		Over Sills		At Belt Rails			
WEIGHT									
Body, Lbs.		Truck, Lbs.		Motors, Lbs.		Total, Lbs.			
MOTORS		CONTROLLERS		SWITCHES		HEATER		REMARKS	
Kind	Double	Double	No.	Kind					
	— H. P.	— H. P.							

(C) Equipment Book, — Power Station.

DYNAMOS				BOILERS					
No.	Kind	H. P.	Maker	Maker	No.	Kind	H. P.	No. of Tubes	Kind Setting

ENGINES				FLY-WHEELS				
No.	Kind	H. P.	Maker	Maker	No.	Kind	Dimensions	Maker

BELTING				GENERATORS			LIGHTNING-ARRESTERS		
Kind	Length	Width	No.	No.	Kind	H. P.	Maker	No.	Kind

STORAGE BATTERIES			CIRCUIT BREAKERS			SWITCHBOARDS			VOLT METERS			REMARKS	
No.	Kind	No.	Kind	No.	Size	No.	Kind	No.	Kind	No.	Kind		

(D) Water-Power Plant-Construction Book.

DAMS				CANALS				
Slope	Width		Method of Construction	H. P. Developed	Length	Width	Depth	Construction
	Base	Top						
PENSTOCKS				WATER WHEELS				TAIL-RACES
Kind of Construction	Dimensions	Maker	No. of Units or Wheels	H. P. per Unit or Wheel	Total H. P.			

(E) Real Estate Book.

LAND			BUILDINGS			
Location	No. Feet		Location	Character	Dimensions	Method Construction
RIGHTS OF WAY						
Location	Description	No. Feet	REMARKS			

In large companies the construction record book may be subdivided into departments, and each department superintendent furnished with the construction records pertaining to his department, so that he will have all the details pertaining thereto in an emergency.

(F) Operation Book, Power Station.

This book is arranged in a columnar manner, with columns for date, hours running, condensing, non-condensing, machinery in use; subdivided into engines, boilers, dynamos, etc.; coal used, kind and number of tons; maximum horse-power, minimum horse-power, average horse-power, current output, etc., and column for remarks, under which can be entered the weather conditions, extra labor employed, etc.

For a small railway, the record books enumerated above, viz., construction record book, equipment book — rolling stock, equipment book — power station, and real estate book can be incorporated in one book, allowing the greater part of the pages to poles, copper wiring, feeders, rails, ties, paving, etc., as these records are more active, due to the extensions of the system; while the other records are more of a fixed character.

If further information of the character of the fixed structures is desired, such as turn-outs, railway crossings, bridges and trestles, pipe culverts, cars, machinery and apparatus at power station, real estate, etc., one third of the pages of the book should be left blank, whereon diagrams or sketches of the construction and important points bearing upon same, culled from the original specifications or contracts for building same, could be entered, thus having immediate access to this data when occasion requires, avoiding the necessity of hunting up the original contract or specifications which may have been misplaced or lost in the files.

Some companies keep this data on cards in connection with set of plans covering the entire system.

PART IX.

COMBINED INSPECTION AND CUSTOMERS' REGISTERS.

The combined inspection and customers' registers for water, gas, electric light, steam heating, and telephone companies are the most important books of original entry, excluding only the cash book, journal, and ledger.

The *inspection part* of the book will show all the details of each customer's service, or so much thereof as may be deemed necessary; such as,

For water works: Service number, name of customer, fixtures in use (or meter, — number, size, kind, and location), purposes used, date connected, date disconnected, etc.

For gas and electric light works: If method of accounting is by streets or routes, — street, number, name of customer, meter (number, size, kind, and location), purposes used, date connected, date disconnected, etc.

For steam heating works: Street, number, name of customer, location, purposes used, feet of floor surface, date connected, date disconnected, etc.

For telephone companies: Drop number, name of subscriber, location, contract classification, subdivided into columns, telephone, extension bells, extension sets, booths, miscellaneous, date connected, date disconnected.

The *financial part* of the book is arranged in a columnar manner, as follows:

For water works (fixture or unmetered register): Amount due for water, service pipes, taps, miscellaneous, discount or abatements, amount paid, when paid, balance due. (Meter register): Reading, cubic feet; difference, cubic feet; rate; amount due; discount or abatement; amount paid; when paid; balance due.

For gas works: Meter reading, cubic feet; difference, cubic feet; rate; amount due; discount or abatement; amount paid; when paid; balance due.

For electric light works: Meter reading, K.W.; difference, K. W.; rate; amount due; discount or abatements; amount paid; when paid; balance due.

For steam heating works: Steam heat, steam piping and fittings, miscellaneous, abatements or discounts, amount paid, when paid, balance due.

For telephone companies: Rentals, tolls, excess calls, miscellaneous, abatements or discounts, amount paid, when paid, balance due.

The inspection part of the book is entered only once during the life of the book, which can be made to run for any number of years, preferably five, on account of liability to soil from frequent handling.

If there is a change in the fixtures or name of customer, such changes can be entered from the "House-to-House Inspection Book," "On and Off Book," or "In and Out Book," or from any other method adopted for recording the changes, the last name entered running horizontally, being the present or latest customer using any particular service.

By this method you will have at all times a complete record of each service connected with the system and its present status, thereby obviating the necessity of referring to other books of account or card memoranda when any question arises.

It also affords comparisons of use by customers with the corresponding periods of the previous years, and avoids the necessity of opening new registers every year or thereabouts.

The financial part of the book is self-balancing, the total amount of all bills rendered equaling the totals of the columns, — discount or abatements, amount paid, and balance due.

When bills are rendered monthly to customers, a short leaf is inserted in the book, printed on both sides.

Totals of sheets are entered on a summary sheet.

When payments are made, the respective customers' accounts are credited in these books, and the totals of the columns of collector's or treasurer's reports are *debited* to cash and *credited* to their respective accounts in the main ledger.

If the accounts are kept by the controlling method, *cash* is *debited* and *customer's account* is *credited* in the main ledger,

with the total of the report. (See "Controlling Method" and "Accounts Payable, Vouchers Payable, or Distribution Book"; also cash ledger form O-2, under Part III.)

For a large city it would be necessary to divide the city into sections or wards, allotting books to such sections or wards in accordance with the number of customers and possible growth of the business, thus proportioning the books and work of accounting to different bookkeepers.

For large companies, the columns for service pipes and taps, steam piping and fittings, under the financial headings for "Water" and "Steam Heating" companies, respectively, could be eliminated, and separate registers kept for these accounts, as charges seldom occur after the first installation, and then only, as a rule, for repairs or renewals.

(Form Q-1)

(Patent applied for) Combined Inspection and Water Register (Fixture Basis)

SERVICE NO.	NAME OF CUSTOMER	STREET	FAUCETS	ADDL. II	BATH TUBS	ADDL. BATHS	SET TUBS	W.CLOSETS	URINALS	HOSE	PURPOSE USED	YEAR	AMOUNT DUE FOR WATER	SERVICE PIPES	TAPS	MISCELL.	REBATE
1	JOHN JONES											1905					
												1906					
												1907					
												1908					
												1909					
2	THOMAS SMITH											1905					
												1906					
												1907					
												1908					
												1909					
3												1905					
												1906					
												1907					
												1908					
												1909					
4												1905					
												1906					
												1907					
												1908					
												1909					
5												1905					
												1906					
												1907					
												1908					
												1909					
												TOTALS					
												1905					
												1906					
												1907					
												1908					
												1909					

LOOSE-LEAF CUSTOMERS' REGISTERS.

Loose-leaf registers are used by some of the larger corporations, their principal recommendation being that additional growth, also new customers, along the present streets or routes can be provided for in numerical order.

They run by months, but seldom for a period longer than six months, at which time the leaves are renewed in the binders, the old leaves being transferred to the files.

The mechanism, — binders, or locks (of which there are several patents), — by which the sheets are held in place in the covers, have not yet reached that stage of perfection to insure the leaves from loosening, even when apparently securely locked in.

CARD REGISTERS.

By this method cards are arranged in boxes, running numerically or by streets or routes, each customer being allotted one card. When entries are to be made thereon, it necessitates handling the box, finding the card, extracting same, making the entry, blotting same and returning it to its proper location in the box.

When monthly totals are to be taken off, the amount charged to each customer on his card must either be rewritten on a separate piece of paper, or else called off to an operator of an adding machine. The number of handlings of the accounts increases proportionately the liability of errors, and it is seldom a balance is struck on the first trial. They are not self-balancing and rarely approved by auditors for this class of accounting.

The misplacement or loss of a card throws the whole accounting system out of balance, which cannot be rectified until the card is found, or by reference again to the original data from which the particular customer's account was made up.

The first cost of the fixtures and furniture necessary for the installation of a card system is considered very excessive, not taking the amount of floor space occupied into consideration. The greatest objection to it, from the cost standpoint, is the time consumed and force necessary to operate it, which is about in the proportion of 12 to 1 with the other methods, some accountants placing it at 20 to 1.

This method of accounting still finds favor with a few corporations. Several large corporations who installed it have discarded same and are now either on the bound-book or loose-leaf system.

PART X.
PURCHASING DEPARTMENT.

PURCHASING AGENT.

All purchases of whatever nature should be made through the purchasing agent, or other duly authorized officer, who should be held responsible for all supplies on hand and received, and the proper distribution thereof to the respective departments of the company on properly attested requests or orders from the heads of the departments.

(Form R)

(Division or Department Order on Purchasing Agent.)

BOSTON, MASS.,190 .

Order No.

Department

CONSUMER'S WATER COMPANY.

To the Purchasing Agent:

Please order the following supplies for the Company:

Quantity	Articles.
----------	-----------

(Signature)

Approved:

.....
Head of Department.

The above can be made up either in bound-book or on block form, manifolded, so that the department head will always have at his command a duplicate of the orders which he has forwarded to the purchasing agent, also for checking the arrival of the goods.

The head of a department should have a couple of rubber stamps made, one to indicate that the goods were received in a good condition on date, the other per contra, goods received (lacking items checked or in bad condition) on date, signed by department head, per

On receipt of the goods an impression of the proper stamp should be made on the duplicate order which he retains, so that he can O. K. or check the original invoice when it is received from the purchasing agent.

The purchasing agent on receiving the department order (Form R) makes an impression on same with a rubber or other stamp, showing the date and time received, and later (after ordering the supplies) enters the number of the requisition order thereon.

(Form S)

(Requisition Order.)

CONSUMER'S WATER COMPANY.

BOSTON, MASS.,190 .

Requisition

No.

Messrs.

.....

Please ship to us at

via.....

CONSUMER'S WATER COMPANY,

By.....

Purchasing Agent.

The above can be made up either in bound-book or on block form, manifolded either in duplicate or triplicate, as the parties desire, the original to be sent to the vendor and the duplicate to be retained by the purchasing agent, to be held by him pending the arrival of the invoice and the goods.

Should the requisition order be made in triplicate, the third one should be sent to the head of the respective department for which the supplies were ordered, or to the storekeeper, depending on the method of accounting adopted.

On the carbons or duplicates of the requisition order there is printed in the lower left-hand corner:

Invoice forwarded
To

.....
Head of Department.

INVOICES.

On receipt of the invoice, the purchasing agent compares and checks same with the copy of the original requisition order and stamps same with a special stamp, having printed thereon: Date goods received, condition, approval of head of department, approved, purchasing agent, and forwards same to the department head, who compares and checks same with his original order and record of goods received, and if found correct, approves same on the lines allotted for his entries and signature, and returns it to the purchasing agent, who also approves and forwards same to the accounting department for entry to the credit of the vendor's account.

The invoice will then show on its face all the details of verification and approval.

If the supplies have been ordered for stock, the invoice is stamped with a rubber or other stamp made for that particular purpose and sent to the storekeeper, who checks the items thereon with his record of goods received, and, if found correct, approves same on the lines allotted for his entries and signature and then forwards it to the purchasing agent, who in turn approves same and forwards it to the accounting department for entry and credit to the vendor's account.

DEPARTMENT ORDER.

In case each department orders its own supplies, the following form is recommended:

(Form R-1)

CONSUMER'S GAS COMPANY.

..... Department.

Order No.
(Red ink.)

BOSTON, MASS.,190 .

M.....

.....

Please send to.....

.....

.....

and charge same to our account.

.....

Head of Department.

Enter the number of this Order
on your bill; otherwise it will be
returned. (Red ink.)

In order to expedite business, each department should be
allotted certain numbers, for example, —

Manufacturing Department,	Nos.	1 to 4,999, inclusive.
Construction "	"	5,000 " 9,999, "
Executive "	"	10,000 " 14,999, "

The order blanks could be arranged in bound book, manifolded;
on loose leaves, manifolded, or in bound book with stub attach-
ments.

PART XI.

SALES DEPARTMENT.

SOLICITORS.

This department should have a polite and diplomatic corps, of good address, thoroughly conversant with the business, to develop same amongst the old customers and to secure new ones, especially along the lines of the present constructed plant. They would be a valuable corps to canvass new territory before extending the system, to determine whether the immediate or possible customers would warrant the expenditure of the funds necessary for the new construction.

CREDITS, COLLECTIONS, AND CLAIMS.

On general principles, parties who own their houses on making application or contract for the installation of a service should be allowed credit, and only parties of whose credit there was doubt should be required to make a deposit, the assumption being that they would not apply for the service unless they actually desired it and intended to pay for same.

A continuous deposit left in the hands of a company to insure them from possibility of loss, or bad bills, injures the company with its patrons and the general public. The better and safer method is to render bills for shorter periods to customers whose credit is doubtful.

The fixing of a date when all bills are payable under the penalty of having the service shut off, and the rigid and diplomatic enforcement of this rule (unless the bill is in dispute) reduces to a minimum the amount of bad bills, as the customers then arrange to meet their bills promptly.

Another method is the allowance of a discount for payment prior to a fixed date, which as a rule customers take advantage of. The treasurer can then always approximate the amount of funds

he will have on hand to meet the demands on the company, thus avoiding the necessity of making temporary loans to tide over periods when fixed charges and other pressing demands must be met.

When there are claims for allowances or rebates due from any cause, if against the company, they should be allowed in a cheerful spirit with due apologies, and if there be any doubt the customer should receive the benefit.

COMPLAINTS.

All complaints made either verbally or by letter should receive prompt and courteous attention, and same be referred to the head of the department, according to the nature of the complaint, who should despatch a representative at the earliest opportunity to adjust same.

FIXTURES.

A large room should be secured on the ground floor and adjoining the office, if possible, where all the appliances and fixtures for gas and electric light business could be shown to advantage. The greater part of these appliances should be connected up with the system so that a possible customer could see at a glance the method of operation and effects of same, which would not require unnecessary explanations.

All of the aforesaid departments should work in harmony with each other, and unless the company was a large one, these departments should be consolidated under one head.

PART XII.

ENGINEERING DEPARTMENT.

PLANS.

All companies should have at least one large set of plans, platted on mounted cloth, on a scale of one hundred feet to the inch, showing all the details of construction pertaining to the whole system, the initial sheet having printed or lettered thereon an index of the references. All extensions of the system should be plotted thereon at least once a year. When not in use they should be stored in a fireproof vault or safe, as it would entail considerable trouble and large expense to make a duplicate set in case of loss.

For active use it would be advisable to have a set of tracings made from which blue-prints could be made for any number of working sets desired.

METAL PLAN CASE.

This plan case should have a large number of drawers of sufficient dimensions to hold any detail plans that might be necessary, each drawer being either numbered or lettered on the outside. All plans, tracings, or blue-prints should be stamped with some designating number or letter. A card index is a valuable adjunct in connection with the plan case.

EXTENSIONS AND ADDITIONS OF THE SYSTEM.

Drawings or plans showing all the details of the new construction or extensions of the system should be rendered weekly or monthly, as the occasion demands, either by the engineer or foreman in charge of the work, but preferably by the engineer, duly signed by him, and same platted on the original set of plans and tracings; also entered in the construction record book, under the month or year under which said work was done, thus keeping up the construction records, so that at the end of any fiscal or calendar year, according to the method employed, said book can be balanced.

PART XIII.

CHEMICAL AND TESTING DEPARTMENT.

For large corporations it would be economical to install a laboratory and have a sufficient chemical force to test materials and supplies, such as ascertaining the steam-producing qualities of coal; relative percentage of mineral and vegetable oil contained in oil for lubricating purposes; hardness of water and minerals contained therein, to determine its value for boiler uses; if for drinking purposes and delivered through lead pipes, whether the lead was in solution; whether contaminated by sewage or other impurities, thus forestalling suits for damages; component parts of paint to determine its probable length of wear; tensile strengths of cement for use on various parts of construction, etc.

Records could also be kept by this department showing the dates and kind of materials and supplies purchased; amounts, prices, periods required for consumption; details of the analyses, tests, etc., which would materially assist the purchasing department in requiring certain standards when placing orders for such materials in the future.

PART XIV.

AUDITS AND EXAMINATIONS.

Periodical audits and examinations should be made by a disinterested party who is thoroughly conversant in the science of accounting, and by one whose vision is broad enough to analyze and make rough deductions. He should not alone be competent to check and verify the receipts and disbursements, either by note, voucher, or check, but should also be able to state whether such items have been appropriated to their proper accounts. In other words, whether the receipts have been applied to their respective accounts, such as revenue, notes, mortgages issued, etc.; and the disbursements, to an expense account of running the business; or a capital account, — enlargement of the plant or reducing the liabilities.

He should be given access to all contracts and other data, the accounting for which at times does not appear in detail on the books.

Should the examination be made with reference to the purchase of a plant by other parties, this would necessitate not only a thorough examination of the account books, vouchers, etc., for a period of years, but also of the act of incorporation, votes of stockholders and directors pertaining to the issue of mortgage bonds, stocks, or other securities, dividends, leases, contracts, etc.

The examiner should also secure a certificate from the trustee for the bondholders of the number of bonds still outstanding, together with the coupons remaining unpaid, with the dates, numbers, and other details of same, so that he can verify and make comparisons with the canceled bonds and coupons in the treasury of the company and check the figures representing same on the books.

In addition to the above, a general examination of the city should be made, covering the city's population, giving the United States census returns for the preceding thirty years, or more if deemed necessary; present estimated population; last state or school census; composition of population; city's assessed valua-

tion, tax rate, bonded debt; principal industries, enumerated, giving their annual output in quantity and dollars, if same are obtainable; steam and electric railroads entering city and their connections; water-ways, steamboats, and other lines; territory tributary thereto, with products, industries, and valuation thereof, together with any other information which may be of value to determine the present or future prospects and growth of the community.

There should also be incorporated in his report an extended statement of the physical plant, separating same into units, giving details of the parts of each unit, together with the condition of the plant from a casual examination, adding any recommendations as to methods of maintenance, operation, management, or improvement of the plant whereby same can be operated more economically.

In case examination is made for valuation purposes, with a view to purchase of the property by a city or town, the main questions then at issue are earning capacity, franchise, going value, construction, capacity, physical condition of the property, etc. Valuation cases are generally heard before a commission appointed by the court, with the consent of both parties thereto. In such cases the accountant works in coöperation with experts in the particular line under consideration, such as owners, managers, engineers, etc.

PART XV.

DEPRECIATION.

No positive fixed percentages can be made that will govern the depreciation of all water works, gas works, electric light works, steam heating works, telephone companies, and electric railways.

The kind and nature of the original construction is the most important factor, but there are other causes and conditions governing and surrounding each plant of the above classes that should be subject to special consideration and examination by experts in the particular class, especially so when the question of valuation is the one at issue, and even then there is a wide divergence of opinion.

Depreciation arises from a variety of causes and conditions, viz., that due to wear and tear; to oversight or errors in original construction; to outgrowth caused by increased population or unforeseen use; later improvements or inventions in machinery, appliances, etc., by which the business can be operated more economically; scientific knowledge; lack of care, maintenance, and use; deterioration, such as electrolysis or chemical action on pipes, etc., corrosion, accretions in the pipe system; depopulation; by the falling off or stagnation in the business of special industries on which the city or town may be dependent; by the transfer of important business interests to another community; inadequacy of supply; pollution, in case of water works; to the elements, etc.

Depreciation, when considered simply from the standpoints of "wear and tear" and "later inventions or improvements in machinery," etc., with the assumption that the properties have been well constructed and properly maintained, may be divided into three classes, viz.: Those parts of the properties which have the longest or maximum life; those which have an average or mean life; and those which have the shortest, or minimum life.

MAXIMUM LIFE.

To include structures of masonry, stone, or brick, such as dams, canals, tail-races, reservoirs; filters, foundations for machinery, conduits, manholes, buildings, etc.; embankments of earth well

sodded; cast iron pipe and special castings when properly coated and not subjected to electrolysis or chemical action; iron structures, such as standpipes, gas holders, bridges, trestles, etc.

MEAN LIFE.

To include machinery, such as pumps, engines, fly-wheels, wooden buildings, valves, hydrants, mechanical filters, gas lamps, purifiers, roadbeds, paving, cables, cars, etc.

MINIMUM LIFE.

To include boilers, meters, heaters, retorts, gas stoves, electrical machinery of all kinds, poles, wires, carbons, lamps, globes, telephone instruments, switchboards, rails, ties, motors, controllers, arc lamps, incandescent lamps, etc.

NOTE. — Some of the latter class have a very rapid depreciation.

On plants of first-class construction the following percentages appear to be a fair allowance for depreciation as a whole, deduced from the authorities consulted and what data the writer had available:

Water works,	1½ to 3%
Gas works,	3 „ 5%
Electric light works,	5 „ 10%
Steam heating works,	7 „ 10%
Telephone companies,	8 „ 12%
Electric railways,	5 „ 8%

NOTE. — The gas and electric light commissioners of Massachusetts now practically compel gas and electric light works under municipal ownership to include in the tax levy five per cent of the cost of the plant as a depreciation fund, under authority of Chapter 410 of the Acts of 1905, of which the following is an extract:

SECTION 4. Said chapter is hereby further amended by striking out section twenty-one and inserting in place thereof the following: *Section 21.* Prior to the beginning of each fiscal year the manager of the plant shall furnish to the mayor, selectmen, or municipal light board, if any, an

estimate of the income from sales of gas and electricity to private consumers during the ensuing fiscal year and of the expense of the plant during said year, meaning the gross expenses of operation, maintenance, and repair, the interest on the bonds, notes, or scrip issued to pay for the plant, *an amount of depreciation equal to five per cent of the cost of the plant, or such smaller or larger amount as the board of gas and electric light commissioners may approve*, the requirements of the sinking fund or debt incurred for the plant, and the loss, if any, in the operation of the plant during the preceding year. The excess of the expense thus defined and estimated over the estimated income from sales to private consumers shall be included by the city or town in its annual appropriations for maintenance and in the tax levy. By cost of the plant is intended the total amount expended on the plant to the beginning of the fiscal year, for any purpose for which bonds, notes, or scrip may be issued under sections seven and eight of this chapter. By loss in operation is intended the difference between the actual income from private consumers plus the appropriations for maintenance for the preceding fiscal year and the actual expense of the plant, reckoned as above, for that year in case such expense exceeded the amount of such income and appropriation. The income from sales and the money appropriated as aforesaid shall be used to pay the annual expense of the plant defined as above, for the fiscal year, *except that no part of the sum therein included for depreciation shall be used for other purposes than renewals, in excess of ordinary repairs, extensions, reconstruction, enlargements, and additions. The surplus, if any, of said annual allowances for depreciation after making the above payments shall be kept as a separate fund and used for renewals, other than ordinary repairs, extensions, reconstruction, enlargements, and additions in succeeding years; and no debt shall be incurred under sections seven and eight of this chapter for any extension, reconstruction, or enlargements of the plant in excess of the amount needed for the purpose in addition to the amount then on hand in said depreciation fund. Said depreciation fund shall be kept and managed by the city or town treasurer as a separate fund, subject to appropriation by the city council or selectmen or municipal light board, if any, for the foregoing purpose.* All appropriations for the plant shall be either for the annual expense defined as above, or for extensions, reconstruction, enlargements, or additions; and no appropriation shall be used for any purpose other than that stated in the vote making the same. No bonds, notes, or scrip shall be issued by a city or town for the annual expenses as defined in this section.

NOTE. — Towns that are maintaining their plants up to proper standards and paying for same out of earnings object strenuously against including five per cent of the cost of the plant in the tax levy to be set aside as a renewal or depreciation fund.

PART XVI.

FUNDS—DIVIDENDS.

FUNDS.

Surplus Fund represents the excess of earnings or profit and loss account which has not been distributed amongst the stockholders.

It may be on hand in the shape of cash or invested in the plant, or part cash on hand and balance invested in the plant.

Sinking Fund is a fund set aside periodically (generally in escrow) to retire outstanding securities, especially mortgage bonds.

Reserve Fund is a fund set aside for some particular purpose, and is generally represented by cash on deposit.

Depreciation Fund is a fund set aside periodically, taken from either profit and loss or surplus, to cover the whole or certain portions of the depreciation of a plant.

DIVIDENDS.

Cumulative Dividends represent dividends on stock which accumulate as a dividend charge against the stock until they are paid.

Non-Cumulative Dividends represent dividends on stock which have been passed or defaulted, and do not remain as a charge against the stock.

Stock Dividends represent dividends paid out of the capital stock of a company.

PART XVII.

ANNUITY, COMPOUND INTEREST, AND SINKING FUND TABLES.

Accumulations of an Annuity of \$1.00 put at Interest and Compounded Annually from 1 to 50 Years.

RATE OF INTEREST, PER CENT.										
No. of Years	2	2½	3	3½	4	4½	5	5½	6	No. of Years
1	1.02000	1.02500	1.03	1.035	1.04	1.04500	1.05	1.055	1.06	1
2	2.06040	2.07563	2.06090	2.10622	2.1216	2.13702	2.15250	2.16802	2.18360	2
3	3.12161	3.15252	3.18363	3.21494	3.24646	3.27819	3.31013	3.34226	3.37462	3
4	4.20404	4.25633	4.30914	4.36246	4.41632	4.47071	4.52564	4.58108	4.63710	4
5	5.30812	5.38774	5.46841	5.55017	5.63297	5.71689	5.80192	5.88804	5.97533	5
6	6.43428	6.54744	6.66246	6.77942	6.89829	7.01915	7.14202	7.26688	7.39385	6
7	7.58296	7.73613	7.89234	8.05170	8.21422	8.38001	8.54912	8.72156	8.89748	7
8	8.75462	8.95454	9.15911	9.36851	9.58279	9.80211	10.02657	10.25625	10.49133	8
9	9.94971	10.20341	10.46388	10.73140	11.00610	11.28821	11.57790	11.87534	12.18081	9
10	11.16871	11.48349	11.80780	12.14199	12.48634	12.84118	13.20679	13.58349	13.97166	10
11	12.41208	12.79557	13.19203	13.60196	14.02579	14.46403	14.91713	15.38553	15.86996	11
12	13.68032	14.14045	14.61779	15.11303	15.62682	16.15991	16.71299	17.28679	17.88216	12
13	14.97393	15.51895	16.08632	16.67698	17.29189	17.93211	18.59864	19.29257	20.01509	13
14	16.29341	16.93192	17.59891	18.29567	19.02357	19.78406	20.57857	21.40866	22.27600	14
15	17.63928	18.38022	19.15688	19.97067	20.82451	21.71934	22.65750	23.64114	24.67256	15
16	19.01207	19.86473	20.76158	21.70465	22.69749	23.74171	24.84037	25.99641	27.21291	16
17	20.41231	21.38635	22.41443	23.49932	24.64539	25.85509	27.13239	28.48122	29.90569	17
18	21.84056	22.94601	24.11686	25.35681	26.67121	28.06357	29.53901	31.10269	32.76003	18
19	23.29737	24.54466	25.87036	27.27930	28.77805	30.37143	32.06596	33.86834	35.78563	19
20	24.78332	26.18326	27.67647	29.26908	30.96917	32.78315	34.71926	36.78610	38.99277	20
21	26.29899	27.86287	29.53676	31.32851	33.24793	35.30339	37.50522	39.86434	42.39234	21
22	27.84497	29.58445	31.45286	33.46002	35.61784	37.93704	40.43048	43.11188	45.99588	22
23	29.42187	31.34907	33.42644	35.66613	38.08255	40.68921	43.50200	46.53804	49.81564	23
24	31.03031	33.15781	35.45923	37.94945	40.64585	43.56523	46.72710	50.15264	53.86458	24
25	32.67092	35.01177	37.55301	40.31269	43.31168	46.57067	50.11346	53.96604	58.15646	25

Accumulations of an Annuity of \$1.00 put at Interest and Compounded Annually from 1 to 50 Years.

RATE OF INTEREST, PER CENT.										
No. of Years	2	2½	3	3½	4	4½	5	5½	6	No. of Years
26	34.34434	36.91207	39.70960	42.75864	46.08414	49.71135	53.66913	57.98918	62.70585	26
27	36.05123	38.85987	41.93089	45.29020	48.96750	52.99336	57.40259	62.23359	67.52821	27
28	37.79226	40.85637	44.21881	47.91036	51.96620	56.42306	61.32272	66.71145	72.63991	28
29	39.56811	42.90279	46.57537	50.62223	55.08484	60.00710	65.43886	71.43559	78.05831	29
30	41.37947	45.00037	49.00263	53.42901	58.32823	63.75242	69.76080	76.41956	83.80181	30
31	43.22706	47.15038	51.50271	56.33403	61.70135	67.66628	74.29884	81.67765	89.89993	31
32	45.11160	49.35413	54.07779	59.34072	65.20940	71.75626	79.06378	87.22493	96.34333	32
33	47.03384	51.61297	56.73012	62.45265	68.85777	76.03029	84.06697	93.07731	103.18394	33
34	48.99452	53.92828	59.46202	65.67360	72.65207	80.49666	89.32032	99.25157	110.43499	34
35	50.99441	56.30148	62.27588	69.00718	76.59815	85.16401	94.83634	105.76542	118.12110	35
36	53.03430	58.73403	65.17415	72.45743	80.70207	90.04139	100.62816	112.63753	126.26838	36
37	55.11496	61.22741	68.15937	76.02844	84.97015	95.13625	106.70957	119.88761	134.90449	37
38	57.23726	63.78312	71.23415	79.72443	89.40895	100.46447	113.09505	127.53644	144.05877	38
39	59.40201	66.40269	74.40117	83.54979	94.02530	106.03037	119.79980	135.60596	153.76231	39
40	61.61006	69.08772	77.66320	87.50903	98.82630	111.84674	126.83976	144.11930	164.04806	40
41	63.86227	71.83987	81.02309	91.60684	103.81934	117.92485	134.23175	153.10088	174.95096	41
42	66.15952	74.66084	84.48378	95.84808	109.01210	124.27647	141.99334	162.57644	186.50803	42
43	68.50272	77.55236	88.04829	100.23776	114.41257	130.91390	150.14301	172.57316	198.75853	43
44	70.89278	80.51619	91.71973	104.78108	120.02906	137.85003	158.70018	183.11970	211.74406	44
45	73.33064	83.55412	95.50132	109.48341	125.87021	145.09829	167.68519	194.24630	225.50872	45
46	75.81726	86.66799	99.39635	114.35033	131.94501	152.67272	177.11944	205.98486	240.09926	46
47	78.35361	89.85970	103.40823	119.38759	138.26280	160.58800	187.02541	218.36902	255.56524	47
48	80.94069	93.13120	107.54047	124.60115	144.83330	168.85946	197.42668	231.43434	271.95918	48
49	83.57951	96.48449	111.79668	129.99718	151.66662	177.50314	208.34802	245.21825	289.33675	49
50	86.27111	99.92161	116.18057	135.58208	158.77327	186.53579	219.81542	259.76028	307.75698	50

COMPOUND INTEREST TABLE.

Giving Value of \$1.00 at End of Any Year from 1 to 50.

Years	1½	2%	3%	3½	4%	4½	5%	5½	6%	6½	7%	Years
1	1.0100	1.0200	1.0300	1.0350	1.0400	1.0450	1.0500	1.0550	1.0600	1.0650	1.0700	1
2	1.0201	1.0404	1.0609	1.0712	1.0816	1.0920	1.1025	1.1130	1.1236	1.1342	1.1449	2
3	1.0303	1.0612	1.0927	1.1087	1.1249	1.1412	1.1576	1.1742	1.1910	1.2079	1.2250	3
4	1.0406	1.0824	1.1255	1.1475	1.1699	1.1925	1.2155	1.2388	1.2625	1.2865	1.3108	4
5	1.0510	1.1041	1.1593	1.1877	1.2167	1.2462	1.2763	1.3070	1.3382	1.3701	1.4026	5
6	1.0615	1.1262	1.1941	1.2293	1.2653	1.3023	1.3401	1.3788	1.4185	1.4591	1.5007	6
7	1.0721	1.1487	1.2299	1.2723	1.3159	1.3609	1.4071	1.4547	1.5036	1.5540	1.6058	7
8	1.0829	1.1717	1.2668	1.3168	1.3686	1.4221	1.4775	1.5347	1.5938	1.6550	1.7182	8
9	1.0937	1.1951	1.3048	1.3629	1.4233	1.4861	1.5513	1.6191	1.6895	1.7626	1.8385	9
10	1.1046	1.2190	1.3439	1.4106	1.4802	1.5530	1.6289	1.7081	1.7909	1.8771	1.9672	10
11	1.1157	1.2434	1.3842	1.4600	1.5395	1.6229	1.7103	1.8021	1.8983	1.9992	2.1049	11
12	1.1268	1.2682	1.4258	1.5111	1.6010	1.6959	1.7959	1.9012	2.0122	2.1291	2.2522	12
13	1.1381	1.2936	1.4685	1.5640	1.6651	1.7722	1.8857	2.0058	2.1329	2.2675	2.4098	13
14	1.1495	1.3195	1.5126	1.6187	1.7317	1.8519	1.9799	2.1161	2.2609	2.4149	2.5785	14
15	1.1610	1.3459	1.5580	1.6753	1.8009	1.9353	2.0789	2.2325	2.3966	2.5718	2.7590	15
16	1.1726	1.3728	1.6047	1.7340	1.8730	2.0224	2.1829	2.3553	2.5404	2.7390	2.9522	16
17	1.1843	1.4002	1.6528	1.7947	1.9479	2.1134	2.2920	2.4848	2.6928	2.9170	3.1588	17
18	1.1961	1.4283	1.7024	1.8575	2.0258	2.2085	2.4066	2.6215	2.8543	3.1067	3.3799	18
19	1.2081	1.4568	1.7535	1.9225	2.1068	2.3079	2.5270	2.7656	3.0256	3.3086	3.6165	19
20	1.2202	1.4860	1.8061	1.9898	2.1911	2.4117	2.6533	2.9178	3.2071	3.5236	3.8697	20
21	1.2324	1.5157	1.8603	2.0594	2.2788	2.5202	2.7860	3.0782	3.3996	3.7527	4.1406	21
22	1.2447	1.5460	1.9161	2.1315	2.3699	2.6337	2.9253	3.2475	3.6035	3.9966	4.4304	22
23	1.2572	1.5769	1.9736	2.2061	2.4647	2.7522	3.0715	3.4264	3.8198	4.2564	4.7405	23
24	1.2697	1.6084	2.0328	2.2833	2.5633	2.8760	3.2251	3.6146	4.0489	4.5331	5.0724	24
25	1.2824	1.6406	2.0938	2.3632	2.6658	3.0054	3.3864	3.8134	4.2919	4.8277	5.4274	25

COMPOUND INTEREST TABLE — Continued.

Giving Value of \$1.00 at End of Any Year from 1 to 50.

Years	1½	2½	3½	4½	5½	6½	7½	Years
26	1.2953	1.6734	2.1566	2.4460	2.7725	3.1407	3.5537	26
27	1.3082	1.7069	2.2213	2.5316	2.8834	3.2820	3.7335	27
28	1.3213	1.7410	2.2879	2.6202	2.9887	3.4297	3.9201	28
29	1.3345	1.7758	2.3566	2.7119	3.1187	3.5840	4.1161	29
30	1.3478	1.8114	2.4273	2.8068	3.2434	3.7453	4.3219	30
31	1.3613	1.8476	2.5001	2.9050	3.3731	3.9139	4.5380	31
32	1.3749	1.8845	2.5751	3.0067	3.5081	4.0900	4.7649	32
33	1.3887	1.9222	2.6523	3.1119	3.6484	4.2740	5.0032	33
34	1.4026	1.9607	2.7319	3.2209	3.7943	4.4664	5.2533	34
35	1.4166	1.9999	2.8139	3.3336	3.9461	4.6673	5.5160	35
36	1.4308	2.0399	2.8983	3.4503	4.1039	4.8774	5.7918	36
37	1.4451	2.0807	2.9852	3.5710	4.2681	5.0969	6.0814	37
38	1.4595	2.1223	3.0748	3.6960	4.4388	5.3262	6.3855	38
39	1.4741	2.1647	3.1670	3.8254	4.6164	5.5659	6.7048	39
40	1.4889	2.2080	3.2620	3.9593	4.8010	5.8164	7.0400	40
41	1.5038	2.2522	3.3599	4.0978	4.9931	6.0781	7.3920	41
42	1.5188	2.2972	3.4607	4.2413	5.1928	6.3516	7.7616	42
43	1.5340	2.3432	3.5645	4.3897	5.4005	6.6374	8.1497	43
44	1.5493	2.3901	3.6715	4.5433	5.6165	6.9361	8.5572	44
45	1.5648	2.4379	3.7816	4.7024	5.8412	7.2483	8.9850	45
46	1.5805	2.4866	3.8950	4.8669	6.0748	7.5744	9.4343	46
47	1.5963	2.5363	4.0119	5.0373	6.3178	7.9153	9.9060	47
48	1.6122	2.5871	4.1323	5.2136	6.5705	8.2715	10.4013	48
49	1.6283	2.6388	4.2562	5.3961	6.8333	8.6437	10.9213	49
50	1.6446	2.6916	4.3839	5.5849	7.1067	9.0326	11.4674	50

SINKING FUND TABLE.

Annuity Paid or Invested at the END of Each Year Required to Redeem 1,000 Dollars in from 1 to 50 Years.

Years to Run		RATE OF INTEREST, PER CENT.										Years to Run	
		2	2½	3	3½	4	4½	5	5½	6			
1	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1	1,000.00	
2	495.05	493.78	492.69	491.42	490.20	489.00	488.00	487.80	486.62	485.43	2	484.25	
3	326.72	325.14	323.56	321.94	320.36	318.77	317.22	316.03	314.10	312.57	3	311.03	
4	242.63	240.84	239.02	237.26	235.50	233.74	232.01	230.29	228.60	226.91	4	225.28	
5	192.16	190.24	188.35	186.49	184.63	182.79	180.98	179.13	177.39	175.64	5	173.99	
6	158.53	156.56	154.61	152.67	150.79	148.88	147.02	145.18	143.36	141.54	6	139.79	
7	134.52	132.49	130.51	128.57	126.61	124.67	122.82	120.96	119.13	117.31	7	115.54	
8	116.51	114.47	112.46	110.48	108.53	106.60	104.72	102.86	101.03	99.21	8	97.42	
9	102.52	100.46	98.44	96.44	94.49	92.57	90.69	88.83	87.02	85.21	9	83.43	
10	91.33	89.25	87.24	85.24	83.29	81.38	79.50	77.67	75.87	74.07	10	72.25	
11	82.18	80.11	78.07	76.09	74.15	72.25	70.39	68.57	66.79	65.00	11	63.26	
12	74.56	72.49	70.46	68.48	66.55	64.67	62.83	61.03	59.28	57.54	12	55.77	
13	68.12	66.05	64.03	62.06	60.14	58.27	56.45	54.68	52.96	51.24	13	49.73	
14	62.60	60.54	58.53	56.57	54.67	52.82	51.02	49.28	47.58	45.89	14	44.01	
15	57.83	55.77	53.77	51.82	49.94	48.11	46.34	44.62	42.96	41.34	15	40.42	
16	53.65	51.60	49.61	47.68	45.82	44.01	42.27	40.58	38.95	37.34	16	35.44	
17	49.97	47.93	45.95	44.04	42.20	40.42	38.70	37.04	35.44	33.87	17	32.36	
18	46.70	44.67	42.71	40.82	38.99	37.24	35.54	33.92	32.36	30.84	18	29.62	
19	43.78	41.76	39.81	37.94	36.14	34.40	32.75	31.15	29.62	28.14	19	27.18	
20	41.15	39.14	37.22	35.36	33.58	31.87	30.24	28.68	27.18	25.72	20	24.27	
25	31.22	29.27	27.43	25.67	24.01	22.44	20.95	19.55	18.23	16.95	25	15.05	
30	24.65	22.78	21.02	19.37	17.83	16.39	15.05	13.80	12.65	11.54	30	10.52	
35	20.00	18.20	16.54	15.00	13.58	12.27	11.07	9.97	8.97	8.00	35	7.32	
40	16.55	14.84	13.26	11.83	10.52	9.34	8.28	7.32	6.46	5.64	40	5.43	
45	13.91	12.27	10.78	9.45	8.26	7.20	6.26	5.43	4.70	4.00	45	4.06	
50	11.82	10.26	8.87	7.63	6.55	5.60	4.78	4.06	3.44	2.92	50	3.44	

MISCELLANEOUS ACCOUNT FORMS.

Form of

Daily, Weekly, or Monthly Report of Condition.

190

This Statement Verified

AUDITOR OR CHIEF ACCOUNTANT

(Form V)

[illegible]

(Form X)

Engineer's Annual Report

(Summary of Reports heretofore rendered to Treasurer)

To the President;—

Extensions and Additions to the Plant for the Fiscal
 Year ending _____ have been made as follows

LOCATION		PIPES					VALVES			HYDRANT NUMBER	MISCELL- LANEOUS
IN STREET	FROM	TO	DIAMETERS AND LENGTHS					40-IN.	42-IN.	44-IN.	
MORTON	RIVER	BLUE HILL AV.	8,000	40-IN.	42-IN.	50 IN. ETC.		3			
BLUE HILL AV.	MORTON	TALBOT AV.	8,000					3			
TALBOT AV.	BLUE HILL AV.	WASHINGTON	9,000						3	4	
WASHINGTON	TALBOT AV.	WELLES AV.			1,500					1	
WELLES AV.	WASHINGTON	DORCHESTER AV				2,500				5	
		TOTAL	8,000	8,000	1,500	8,500		3	3	1	
LEES TAKEN UP											
JONES	WEST	BOYLSTON									
ADAMS	BALDWIN	MAIN		400	100				1		
		TOTAL TAKEN UP		400	100				1		
		TOTAL INCREASE	8,000	8,000	1,500	8,500		3	3	1	
										15	7

ENGINEER

SUMMARY OF EXTENSIONS

NO. OF MILES OF PIPE 2.8858

NO. OF VALVES 8

NO. OF HYDRANTS 34

ADDITIONS

HEIGHT OF DAM RAISED 2 FEET

INCREASING THE STORAGE

CAPACITY TEN MILLION GALLONS.

PUMPING MACHINERY INSTALLED

DETAILS, ETC., ON SHEET ATTACHED.

(Form Y)

Treasurer's Annual Report**for the Fiscal Year ending 190****Profit and Loss Account**

Expense	\$			Water	\$		
				Meters			
				Fixtures			
Repairs, Renewals, and Maintenance				Hydrants (Public)			
				" (Private)			
Salaries and Wages				Flushing (Street)			
				" (Sewer)			
Fuel				Miscellaneous			
				Meter Rentals			
				Service Pipes			
Net Gain (Balance)				Taps			
Total	\$			Total	\$		
Net Gain for Year				\$			
Fixed Charges:-							
Taxes	\$						
Interest on Debt	\$						
				Total	\$		
Surplus for Year				\$			

Assets:-

Construction	\$		
Cash in Banks			
" " Vault			
Notes Receivable			
Accounts "			
Inventory			
Fuel			
Supplies			
Total	\$		

Liabilities:-

Capital Stock	\$		
Bonded Debt			
Notes Payable			
Accounts Payable			
Coupons Outstanding			
Depreciation Fund			
Surplus			
Total	\$		

Treasurer

PART XIX.
MISCELLANEOUS INSTRUMENT FORMS.

NOTES.

(Ordinary Form.)

(Form 108)

\$..... BOSTON,190 .
.....after date promise to pay
to the order of
..... Dollars,
Payable at
Value received.
.....
No. Due.....

(Form 109)

(Collateral Security Form, No. 1.)

DOLLS. CTS. BOSTON,190 .
.....after date, for value received,
..... promise to pay to
or order, at place of business,
..... Dollars, $\frac{\quad}{100}$,
with interest, at the rate of per centum per
Having deposited with this obligation as
COLLATERAL SECURITY,
.....
.....
.....
.....

with the right to call for additional security should the same decline, and with authority to sell the same or any collaterals substituted for or added to the above, without notice, either at public or private sale or otherwise, at the option of the holder or holders hereof on the non-performance of this promise, he or they givingcredit for any balance of the net proceeds of such sale remaining after paying all sums due from to the said holder or holders, or to his or their order. And it is further agreed that the holder or holders hereof may purchase at any public sale. Due

.....

(Form 110)

(Collateral Security Form No. 2.)

BOSTON, MASS.,190 .

\$.....

.....after date, for value received, promise to pay to

THE TRUST COMPANY, OF BOSTON,

or order, at said Trust Company,.....Dollars, having deposited with said Trust Company, as collateral security for payment of this or any other direct or indirect liability or liabilities of to said Trust Company, due or to become due, or that may be hereafter contracted, the following property, viz.:

.....
.....
.....

the market value of which is now \$....., with the right to call for additional security should the value, in the judgment of the president, vice-president, or treasurer of said Trust Company, decline; and on the failure to supply the amount demanded, this obligation shall be deemed to be due and payable on demand. With full power and authority on the non-performance of this promise or the non-payment of any of the liabilities above mentioned, or at any time or times thereafter, to sell, assign, and deliver the whole of said property or any part thereof, or any substitutes therefor, or any additions thereto, at any brokers' board, or at public or private sale, at the option of said Trust Company, or its president, vice-president, or treasurer, or assigns, without advertisement or any notice to the undersigned or any other person; and the said Trust Company, its officers or assigns, may bid and become purchasers at any such sale, if public, or at brokers' board.

After deducting all legal or other costs and expenses of collection, storage, custody, sale, and delivery, the residue of the proceeds of any such sale or sales to be applied to the payment of any or all of the liabilities aforesaid, due or to become due said Trust Company, returning the overplus to the undersigned.

.....

(Form 111)

(Ordinary Form of Proxy.)

KNOW ALL MEN BY THESE PRESENTS, That the undersigned stockholder in the do hereby appoint true and lawful attorney, with power of substitution, for and in name to vote at the meeting of the stockholders in said company, to be held at or at any adjournment thereof, with all the powers should possess if personally present, hereby revoking all previous proxies.

.....1
Witness,

.....

(Form 112)

(Form of Stock Dividend Certificates and Rights, with endorsement thereon.)

..... COMPANY.

STOCK DIVIDEND CERTIFICATE.

THIS CERTIFIES that is entitled to receive Share , and is the owner of Rights, equivalent, each, to of a share of the capital stock of the COMPANY, in accordance with a vote of the directors of the company, passed January 20, 1906, copy of which appears below.

Such fractional rights to be presented and surrendered to the treasurer, in amounts equivalent to one share or some multiple thereof, in exchange for certificates of stock, on or before noon, February 25, 1906. The number of such rights required to make one share of stock is $22\frac{1}{3}$.

Treasurer's Office,
.. State St., Boston, Mass.

February 15, 1906. Treasurer.

“ VOTED: That the 65 shares of stock now in the treasury of the Company be issued as a stock dividend *pro rata* to stockholders of this Company of record February 15, 1906, and that the treasurer of the Company be authorized to adjust all rights relating thereto, and that a dividend of $1\frac{1}{2}$ per cent be declared and paid on each share August 1, 1906.”

(Indorsement.)

FOR VALUE RECEIVED,
hereby sell, assign, and transfer to
..... share , and
rights, equivalent each to $\frac{1}{14}$ of a share of the capital stock of the.....
..... Company, subject to the vote and conditions referred to within.
.....
Dated

PART XX.

OFFICE DEVICES.

In companies where the amount of clerical labor involved is considerable, it would be economical to install some of the principal office devices, thereby materially reducing the cost and expediting the business.

Some of the principal office devices are: Combined billing and adding machines, addressing machines, adding machines, sealing machines, typewriters, perforating receipting stamps, check protectors, hand numbering machines, auto coin machines, letter copiers, postal scales, tube systems, bell annunciators, filing cases, metal plan cases, etc.

There are several good makes of the above on the market, all having some particular merit.

The "addendagraph," an adding attachment to the Underwood typewriter machine, is one of the latest devices.

The Thexton, also Bowes' sealing machines and the Boettscher and Knecht receipting machine are operated by electricity.

For making or checking computations approximately, involving multiplication or division, the slide rule could be used to advantage where there is a large amount of such work.

INDEX OF ACCOUNT FORMS.

	PAGE
Stock Ledger (Form A).....	11
Service Card (Form B).....	29
Plumber's Card (Form C).....	30
Meter Bill (Form D).....	31
Fixture Rate Bill (Form E).....	31
Service-Pipe Bill (Form F).....	32
Telephone Bill (Form D-1).....	131
Collector's Report (Form G).....	33
Treasurer's Statement (Form H).....	34
House-to-House Inspection Book (Form I).....	36
Meter Book (Form J).....	38
On and Off Book (Form K).....	40
Cash Book, Debit Side (Form M).....	45
Cash Book, Credit Side (Form N).....	46
Cash Book, Controlling Method (Form O-2).....	57
Voucher, Check and Distribution (Form O-1).....	52
Voucher Distribution Book (Form O).....	50
Construction Record, Pipes (Form P).....	59
Construction Record, Valves and Hydrants (Form P-1).....	60
Gate Book (Form P-2).....	61
Customer's Register for five years, by months (Form Q).....	166
Customer's Register for Water Works, Fixture Basis (Form Q-1).....	167
Customer's Register running one year only (Form Q-2).....	169
Division or Department Order (Form R).....	171
Division or Department Order (Form R-1).....	174
Requisition Order (Form S).....	172
Daily, Weekly, or Monthly Report of Condition (Form T).....	190
Perpetual Inventory (Form U).....	191
Payroll (Form V).....	192
Payroll Envelope (Form W).....	192
Engineer's Annual Statement (Form X).....	193
Treasurer's Annual Report (Form Y).....	194
Annual Income Account, Electric Railway.....	157

INDEX OF INSTRUMENT FORMS.

	PAGE
Common Stock (Form 100).....	9
Preferred Stock (Form 101).....	10
Power of Attorney (Form 102).....	10
First Mortgage Sinking Fund Bond (Form 103).....	13
Mortgage and Bonds issued thereunder (Form 105).....	15
Coupon (Form 104).....	14
Application Book (Form 106).....	28
Form of Report Required by Gas and Electric Light Commissioners of Massachusetts (Form 107).....	76
Note, Ordinary (Form 108).....	195
Note, Collateral Security No. 1 (Form 109).....	195
Note, Collateral Security No. 2 (Form 110).....	196
Proxy, Ordinary (Form 111).....	197
Stock Dividend Certificate and Rights, with endorsement thereon (Form 112).....	197

ACCOUNT BOOKS, FORMS, ETC.

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